By Mr. GRAHAM: Petition of 1,500 river men and business men of Allegheny County, Pa., for the erection of additional locks and dams on the Allegheny River—to the Committee on Rivers and Harbors.

By Mr. GRONNA: Petition of citizens of Richland County, N. Dak., for retention of import duty on grain—to the Committee on Ways and Means.

By Mr. HAMMOND: Petition of J. C. Aldrich and 85 others, of Currie, Minn., against duty on tea and coffee—to the Committee on Ways and Means.

By Mr. HINSHAW: Petition of citizens of Utica, Seward County, Fourth Congressional District of Nebraska, favoring parcels-post and postal savings bank laws—to the Committee on the Post-Office and Post-Roads.

By Mr. HOWELL of Utah: Petition of B. F. Peixotto Lodge, No. 421, favoring the Goldfogle resolution, relative to American citizens of the Jewish faith traveling in foreign countries—to the Committee on Foreign Affairs.

By Mr. KNOWLAND: Petition of citizens of Oakland, Cal., for an effective exclusion law against all Asiatics save merchants, students, and travelers—to the Committee on Foreign Affairs.

By Mr. LINDBERGH: Petition of citizens of Cokato, Minn., protesting against a duty on tea and coffee—to the Committee on Ways and Means.

Also, petition of Business League of St. Paul, Minn., against the Taliaferro naval-stores regulation bill (S. 7867)—to the Committee on Naval Affairs.

By Mr. MANN: Petition of New York Board of Trade, favoring increase of salaries of United States judges (S. 6973)—to the Committee on Appropriations.

Also, petition of trustees of Newberry Library, against increase of duty on books—to the Committee on Ways and Means.

Also, petition of American Protective Tariff League, opposing creation of a permanent nonpartisan tariff commission—to the Committee on Ways and Means.

Also, petition of Third United Presbyterian Church of Chicago, against extradition of Christian Rudowitz and other Russian political refugees—to the Committee on Foreign Affairs.

By Mr. NEEDHAM: Petition of citizens of Hollister, Cal., against parcels-post and postal savings bank laws—to the Committee on the Post-Office and Post-Roads.

Also, petition of H. S. Spence and others, against passage of Senate bill 3490—to the Committee on the District of Columbia.

By Mr. NELSON: Petition of sundry citizens of Wisconsin, against the Johnston Sunday bill (S. 3940)—to the Committee on the District of Columbia.

By Mr. OLCOTT: Paper to accompany bill for relief of Amanda Ferrero—to the Committee on Invalid Pensions.

By Mr. PADGETT: Paper to accompany bill for relief of estate of Mitchell J. Childress—to the Committee on War Claims.

Also, papers to accompany bills for relief of Roa Z. King and Martha Johnson—to the Committee on War Claims.

Also; paper to accompany bill for relief of Daniel C. Carter—to the Committee on War Claims.

By Mr. SPERRY: Petition of citizens of New Haven, Conn., protesting against the Johnston Sunday bill—to the Committee on the District of Columbia.

Also, petition of Beacon Valley Grange, of Naugatuck, Conn., favoring a national highways commission—to the Committee on Agriculture.

By Mr. STEENERSON: Petition of Business League of St. Paul, Minn., against S. 7867 (Taliaferro naval stores regulation bill)—to the Committee on Interstate and Foreign Commerce.

Also, petitions of J. W. Hazon and others, of Parkers Prairie, Minn., and Andrew Vick and others, of Bronson, Minn., against a duty on tea or coffee—to the Committee on Ways and Means.

By Mr. STEVENS of Minnesota: Petition of Lithographers' International Protective Beneficial Association of St. Paul and Minneapolis, favoring increase of tariff on lithographic work—to the Committee on Ways and Means.

Also, petition of merchants of St. Paul, against duty on tea and coffee—to the Committee on Ways and Means.

By Mr. WANGER: Petition of Middletown Grange, No. 684, Patrons of Husbandry, Jesse C. Webster, master, of Middletown, Bucks County, Pa., and other residents of Bucks County, in favor of a national highways commission and federal aid in road construction (H. R. 15837)—to the Committee on Agriculture.

Also, petition of Illinois Manufacturers' Association, in favor of the enactment of the ocean mail steamship bill—to the Committee on the Merchant Marine and Fisheries.

Also, petitions of Northern Pine Manufacturers' Association, of the Michigan Hardwood Manufacturers' Association, and of the Hardwood Lumber Manufacturers of Wisconsin, against the reduction or repeal of the tariff on lumber—to the Committee on Ways and Means.

Also, petition of Hardwood Manufacturers' Association of the United States, against the repeal or the reduction of the tariff duties on lumber—to the Committee on Ways and Means.

By Mr. WASHBURN: Paper to accompany bill for relief of Bridget T. Elliott (previously referred to the Committee on Invalid Pensions)—to the Committee on Pensions.

SENATE.

WEDNESDAY, *February 3, 1909.*

Prayer by the Chaplain, Rev. Edward E. Hale.

The Secretary proceeded to read the Journal of yesterday's proceedings, when, on request of Mr. GALLINGER, and by unanimous consent, the further reading was dispensed with.

The VICE-PRESIDENT. The Journal stands approved.

ELECTORAL VOTE OF COLORADO.

The VICE-PRESIDENT laid before the Senate a communication from the Secretary of State, transmitting, pursuant to law, an authenticated copy of the certification of the final ascertainment of electors for President and Vice-President appointed in the State of Colorado, which, with the accompanying paper, was ordered to be filed.

URGENT DEFICIENCY APPROPRIATIONS.

The VICE-PRESIDENT laid before the Senate the action of the House of Representatives disagreeing to the amendments of the Senate to the bill (H. R. 26399) making appropriations to supply urgent deficiencies in the appropriations for the fiscal year ending June 30, 1909, and requesting a conference with the Senate on the disagreeing votes of the two Houses thereon.

Mr. HALE. I move that the Senate insist upon its amendments and agree to the conference asked by the House, the conferees to be appointed by the Chair.

The motion was agreed to; and the Vice-President appointed Mr. HALE, Mr. GALLINGER, and Mr. TELLER the conferees on the part of the Senate.

MESSAGE FROM THE HOUSE.

A message from the House of Representatives, by Mr. W. J. Browning, its Chief Clerk, announced that the House had passed the bill (S. 8460) to provide for the deduction of hatchways and water-ballast space from the gross tonnage of vessels.

The message also announced that the House had passed a bill (H. R. 26915) making appropriation for the support of the army for the fiscal year ending June 30, 1910, in which it requested the concurrence of the Senate.

ENROLLED BILLS SIGNED.

The message further announced that the Speaker of the House had signed the following enrolled bills, and they were thereupon signed by the Vice-President:

S. 8695. An act extending the time for the construction by James A. Moore, or his assigns, of a canal along the government right of way connecting the waters of Puget Sound with Lake Washington;

H. R. 4119. An act to pay John Wagner, of Campbell Hall, N. Y., for carrying the mails;

H. R. 6032. An act to pay to the administratrix of the estate of George W. Fleming for services rendered as letter-box inspector from March 29, 1902, to June 13, 1903;

H. R. 7006. An act to correct the military record of George W. Hedrick;

H. R. 7807. An act to place John Crowley on the retired list of the United States Navy;

H. R. 7963. An act for the relief of Patrick Conlin;

H. R. 8050. An act for the relief of James R. Wyrick;

H. R. 10416. An act to correct the naval record of Lieut. Hilary Williams, U. S. Navy;

H. R. 10606. An act for the relief of Robert S. Dame;

H. R. 10986. An act for the relief of L. H. Lewis;

H. R. 10987. An act for the relief of A. A. Lewis;

H. R. 13319. An act for the relief of the heirs of Thomas J. Miller;

H. R. 13955. An act to compensate E. C. Sturges for property lost during the Spanish-American war;

H. R. 14361. An act to reimburse the Eastern Salt Company, of Boston, Mass., for certain excess duty;

AUTHENTICATED U.S. GOVERNMENT INFORMATION GPO

H. R. 15448. An act to amend section 12 of an act entitled "An act to provide for eliminating certain grade crossings on the line of the Baltimore and Potomac Railway Company in the city of Washington, D. C., and requiring said company to depress and elevate its tracks, and to enable it to relocate parts of its railroad therein, and for other purposes," approved February 12, 1901;

H. R. 16927. An act for the relief of Lieut. Commander Kenneth McAlpine;

H. R. 17297. An act authorizing the extension of New York avenue from its present terminus near Fourth street NE. to the Bladensburg road;

H. R. 17344. An act for the relief of Frederick Daubert;

H. R. 19095. An act authorizing the Secretary of the Interior to sell isolated tracts of land within the Nez Perces Indian Reservation;

H. R. 19839. An act for the relief of W. H. Blurock;

H. R. 19893. An act for the relief of Thomas J. Shocker;

H. R. 23711. An act to build a bridge across the Santee River, South Carolina; and

H. R. 26062. An act authorizing the creation of a land district in the State of South Dakota, to be known as the "Bellefourche land district."

PETITIONS AND MEMORIALS.

Mr. BURROWS presented petitions of sundry citizens of Alto, Orange, Vandalia, Allegan, Ludington, Clare, and of Cass County, all in the State of Michigan, praying for the passage of the so-called "rural parcels post" and "postal savings banks" bills, which were referred to the Committee on Post-Offices and Post-Roads.

He also presented a petition of the Casco Pomological Society, of South Haven, Mich., praying for the enactment of legislation to prohibit the manufacture, sale, or transportation, or misbranding insecticides and fungicides, which was ordered to lie on the table.

He also presented a petition of the Michigan Chapter, American Institute of Architects, of the State of Michigan, praying for the enactment of legislation to establish a national council of the fine arts, which was referred to the Committee on the Library.

He also presented a memorial of the Michigan Chapter, American Institute of Architects, of the State of Michigan, remonstrating against the enactment of legislation to purchase land in the vicinity of the Union Station to be used as a site for a memorial to Abraham Lincoln, which was referred to the Committee on the Library.

He also presented memorials of sundry citizens of Detroit, Mich., remonstrating against the enactment of any legislation inimical to the railroad interests of the country, which were referred to the Committee on Interstate Commerce.

He also presented a petition of the common council of Cheboygan, Mich., praying for the enactment of legislation providing for the improvement of the locks located in the Cheboygan River, at the Cheboygan Paper Company's plant at that city, which was referred to the Committee on Commerce.

He also presented a memorial of the Michigan Branch of the Alumnæ Association of the Georgetown Academy of the Visitation, of Detroit, Mich., remonstrating against the enactment of legislation providing for the opening of public streets through the grounds of the Sisters of the Visitation Convent at Georgetown, D. C., which was referred to the Committee on the District of Columbia.

Mr. FULTON presented a joint memorial of the legislature of Oregon, which was referred to the Committee on Agriculture and Forestry and ordered to be printed in the RECORD, as follows:

House joint memorial 6.

Whereas the growing and shipping of apples is an important industry in the State of Oregon, such that the Oregon apple ranks first for excellence in the markets of the world; and

Whereas the fruit growers of the States of Oregon, Washington, Idaho, Montana, Utah, and British Columbia have adopted two uniform sizes of apple boxes, known as the "standard" and "special" apple boxes, containing 2,173.5 cubic inches and 2,200 cubic inches, respectively, each of these boxes containing a bushel according to United States standard; and

Whereas there is now in the Congress of the United States a bill known as the "Porter bill," which attempts to fix the standard for a box of apples at 2,564 cubic inches, to the detriment and injury of the apple growers of the Northwestern States, who now ship more boxed apples than all other States combined: Therefore be it

Resolved by the house (the senate concurring), That the legislative assembly of the State of Oregon request our Senators and Representatives in Congress to use their best efforts to defeat the bill known as the "Porter bill;" and be it further

Resolved, That the chief clerk of the house be instructed to send a copy of this resolution to each Senator and Representative in Congress from Oregon.

UNITED STATES OF AMERICA, STATE OF OREGON,
Twenty-fifth legislative assembly, hall of representatives:

I, W. F. Drager, do hereby certify that I have carefully compared the annexed copy of house joint memorial No. 6 with the original thereof, adopted by the house January 22, 1909, and concurred in by the senate January 26, 1909, together with the indorsements thereon; and that it is a full, true, and complete transcript therefrom and of the whole thereof.

In testimony whereof I have hereunto set my hand at the capitol, at Salem, Oreg., this 27th day of January, A. D. 1909.

W. F. DRAGER,
Chief Clerk.

Mr. FULTON presented petitions of sundry citizens of Montavilla Oreg., praying for the passage of the so-called "rural parcels-post" and "postal savings banks" bills, which were referred to the Committee on Post-Offices and Post-Roads.

Mr. GALLINGER presented the petition of Alfred Shaw, of Washington, D. C., and a petition of the congregation of the Western Presbyterian Church, of Washington, D. C., praying for the enactment of legislation amending the present laws regulating the sale of intoxicating liquors in the District of Columbia, which were referred to the Committee on the District of Columbia.

Mr. BULKELEY presented a petition of sundry citizens of Orange, Conn., praying for the passage of the so-called "rural parcels-post" and "postal savings banks" bills, which was referred to the Committee on Post-Offices and Post-Roads.

Mr. DANIEL presented a petition of the Chamber of Commerce of Newport News, Va., praying for the enactment of legislation providing for placing and maintaining four acetylene gas buoys at the channel across the Newport News Middle Ground, in that State, which was referred to the Committee on Commerce.

Mr. ANKENY presented a joint memorial of the legislature of the State of Washington, which was referred to the Committee on Military Affairs and ordered to be printed in the RECORD, as follows:

Senate joint memorial 3. By Senator Blair.

To His Excellency Theodore Roosevelt, President of the United States of America, to the honorable Secretary of War, and to the honorable Senators and Representatives from the State of Washington:

Your memorialists, the senate and house of representatives of the State of Washington, in legislative session assembled (eleventh regular session, respectfully petition as follows,

That lots 2 and 3 in section 12, township 35 north, of range 3 west, of the Willamette meridian, and lots 4 and 5 in section 11, township 35 north, of range 3 west, of the Willamette meridian, now held by the War Department as a portion of a military reserve on San Juan Island, State of Washington, be donated to the state university of the State of Washington, for a site on which to erect buildings for a biological school to be used in conjunction with said university.

Passed by the senate January 11, 1909.

M. E. HUY,
President of the Senate.

Passed by the house January —, 1909.

LEO O. MEIGS,
Speaker of the House.

Mr. ANKENY presented a petition of the legislature of the State of Washington, praying that an appropriation of $1,000,000 be made for the construction of wagon roads in the Territory of Alaska, which was referred to the Committee on Territories.

He also presented a memorial of the legislature of the State of Washington, remonstrating against the removal of the duty on forest products, which was referred to the Committee on Finance.

He also presented a petition of the legislature of the State of Washington, praying for the removal of the duty on jute and grain bags, which was referred to the Committee on Finance.

He also presented a petition of Mountain View Grange, No. 93, Patrons of Husbandry, of White Salmon, Wash., praying for the passage of the so-called "rural parcels-post" and "postal savings banks" bills, which was referred to the Committee on Post-Offices and Post-Roads.

Mr. KNOX presented a memorial of the Pennsylvania Peace Society, of Philadelphia, Pa., remonstrating against any further appropriation being made to increase the navy, which was referred to the Committee on Naval Affairs.

He also presented a petition of the Federation of Jewish Organizations of New York City, N. Y., praying for the enactment of legislation to create the office of Jewish chaplain in the army and navy, which was referred to the Committee on Military Affairs.

He also presented a petition of sundry citizens of Mount Carmel, Pa., praying for the enactment of legislation to prohibit the manufacture of and importation of opium into the United States, except for medicinal purposes, which was ordered to lie on the table.

He also presented sundry petitions of citizens of western Pennsylvania, praying for the enactment of legislation granting pensions to the surviving members of the United States Military

Telegraph Corps who served in the civil war, which were referred to the Committee on Pensions.

He also presented a petition of Local Lodge No. 124, Independent Order of Odd Fellows, of Gettysburg, Pa., praying for the enactment of legislation providing for the construction of a Lincoln memorial highway from the city of Washington to the battlefield at Gettysburg, in that State, which was ordered to lie on the table.

He also presented a petition of the temperance committee of the General Assembly of the Presbyterian Church of the United States, of Pittsburg, Pa., praying for the enactment of legislation to prohibit the liquor traffic in the Hawaiian Islands, which was referred to the Committee on Pacific Islands and Porto Rico.

He also presented memorials of D. G. Stewart & Geidel, of Pittsburg; George M. Warner, of Philadelphia; L. G. Graff & Sons, of Philadelphia; James L. King, of West Chester; and of the Commercial Exchange of Philadelphia, all in the State of Pennsylvania, remonstrating against the passage of the so-called "McCumber bill," providing for the federal inspection of grain, which were ordered to lie on the table.

He also presented petitions of the American Prison Association, of Chicago, Ill.; the Prison Association, of New York; of Prof. H. R. Mussey, of Philadelphia, Pa.; and S. E. Gill, of Pittsburg, Pa., praying for the enactment of legislation providing for an appropriation of $50,000 for the reception of the International Prison Congress to meet in Washington, D. C., in 1910, which were referred to the Committee on Appropriations.

He also presented petitions of the Board of Trade of Scranton; of the Allegheny County Bar Association, of Pittsburg; of F. G. Moorhead, of Beaver; the Bar Association of Berks County; and the Dauphin County Bar Association, all in the State of Pennsylvania, praying for the enactment of legislation providing for an increase in the salaries of the judges of the circuit and district courts of the United States, which were ordered to lie on the table.

He also presented memorials of the Department of Pennsylvania, Grand Army of the Republic, of Philadelphia, Pa.; the Grand Army of the Republic, of Red Bank, N. J.; and of H. F. Madgeburg, Milwaukee, Wis., remonstrating against the abolition of the local pension agencies throughout the country, which were referred to the Committee on Pensions.

He also presented petitions of Puget Sound Harbor, No. 16, American Association of Masters, Mates, and Pilots, of Seattle, Wash.; of Galveston Harbor, No. 20, American Association of Masters, Mates, and Pilots, of Galveston, Tex.; and of California Harbor, No. 15, American Association of Masters, Mates, and Pilots, of San Francisco, Cal., praying for the passage of the so-called "Knox bill," concerning licensed officers of steam and sail vessels, which were referred to the Committee on Commerce.

REPORTS OF COMMITTEES.

Mr. FRYE, from the Committee on Foreign Relations, reported an amendment proposing to appropriate $200,000 to enable the United States fittingly to participate in the Universal and International Exhibition to be held at Brussels, Belgium, from April to November, 1910, intended to be proposed to the sundry civil appropriation bill, and moved that it be printed and, with the accompanying message from the President of the United States, referred to the Committee on Appropriations, which was agreed to.

Mr. CULLOM, from the Committee on Foreign Relations, to whom was referred the amendment submitted by himself on the 29th ultimo, proposing to appropriate $2,839.79 for the annual share of the United States for the maintenance of the International Sanitary Bureau for the year 1910, intended to be proposed to the diplomatic and consular appropriation bill, reported favorably thereon, and moved that it be referred to the Committee on Appropriations and printed, which was agreed to.

Mr. HALE, from the Committee on Appropriations, to whom was referred Senate Document No. 653, Sixtieth Congress, second session, relative to the title of the United States to lands in the District of Columbia, asked to be discharged from its further consideration and that it be referred to the Committee on the District of Columbia, which was agreed to.

Mr. CURTIS, from the Committee on Pensions, to whom was referred the bill (H. R. 24831) granting pensions and increase of pensions to certain soldiers and sailors of the civil war and certain widows and dependent relatives of such soldiers and sailors, reported it with amendments and submitted a report (No. 904) thereon.

Mr. SCOTT, from the Committee on Pensions, to whom was referred the bill (H. R. 25391) granting pensions and increase of pensions to certain soldiers and sailors of the civil war and certain widows and dependent relatives of such soldiers and sailors, reported it with amendments and submitted a report (No. 905) thereon.

Mr. McCUMBER, from the Committee on Pensions, to whom were referred certain bills granting pensions and increase of pensions, submitted a report (No. 906), accompanied by a bill (S. 9067) to grant pensions and increase of pensions to certain soldiers and sailors of the civil war and to certain widows and dependent relatives of said soldiers, which was read twice by its title, the bill being a substitute for the following Senate bills heretofore referred to that committee:

S. 575. Simeon F. Dickinson;
S. 1242. Elmira S. Tupper;
S. 1282. William J. Irvine;
S. 1297. John Reed;
S. 1303. Richard H. Tombaugh;
S. 1415. Louis N. Lafontisee;
S. 1603. Samuel P. Leith;
S. 1947. Herman J. Wall;
S. 2433. John Frazer;
S. 2491. John S. Hall;
S. 2557. Malinda Wood;
S. 2967. Benjamin F. Martz;
S. 3055. William Crawford;
S. 3058. Girden C. Day;
S. 3290. John A. Wier;
S. 3297. Thomas H. Wells;
S. 3309. Conrad Seim;
S. 3317. Alfred R. Babb;
S. 3333. William A. Plantz;
S. 3565. George W. Parsons;
S. 3772. Joseph B. Graham;
S. 4246. Robert W. Pool;
S. 4419. Hezekiah Allen;
S. 4531. Charles Muller;
S. 4551. Peter J. Coughlin;
S. 4625. Mary A. Wampler;
S. 4705. John A. Gibson;
S. 4918. George W. Morton;
S. 5044. Bernard W. Fisher;
S. 5205. Richard S. Harrison;
S. 5364. Maberry Riggs;
S. 5563. Martha S. Taylor;
S. 5610. Cynthia L. Allen;
S. 6094. Mary E. Williams;
S. 6273. Sarah A. Conner;
S. 6527. Daniel Martin;
S. 6681. Samuel Campman;
S. 6836. James F. Spencer;
S. 6888. William W. Graves;
S. 7037. Francis Hale;
S. 7039. Anna H. Scofield;
S. 7067. William W. Darrow;
S. 7079. Rowena C. Lummis;
S. 7089. William H. Nichols;
S. 7165. Edward A. Wyman;
S. 7281. Elizabeth A. Nye;
S. 7296. John L. Rushton;
S. 7319. Charles Dalle;
S. 7420. James B. Herron;
S. 7422. Oscar Perkins;
S. 7424. Ira H. Thurber;
S. 7443. Barney B. Mattimore;
S. 7445. Daniel A. Grosvenor;
S. 7497. Hiram Dice;
S. 7498. Joseph H. Owen;
S. 7506. Charles F. Chapman;
S. 7509. William Oscar Ward;
S. 7519. Jacob Hill;
S. 7524. Dilazon D. Holdridge;
S. 7574. Eva A. Blanchard;
S. 7628. Abram Rhinehart;
S. 7676. Wales W. Wood;
S. 7684. John Wickham;
S. 7701. James A. Light;
S. 7794. Henry E. Steele;
S. 7834. Rodham Miller;
S. 7934. Amasa Smith;
S. 7980. Michael Archer;
S. 8004. Wallace A. McKinstry;
S. 8064. George Lashus;
S. 8080. Lewis Roberts;
S. 8084. John Donnelly;

S. 8159. James W. Bedford;
S. 8164. Henry Deuble;
S. 8202. Moses Bradford;
S. 8216. Cerelle Shattuck;
S. 8377. Emma C. Orr;
S. 8388. Francis M. Brannon;
S. 8415. William J. Ludley;
S. 8444. Miranda A. Wheelock;
S. 8451. Edward H. Richards;
S. 8470. George E. Wilkinson;
S. 8507. Martin V. Briggs;
S. 8570. Alexander S. Stewart;
S. 8528. John Farrell;
S. 8594. James H. Tilman;
S. 8623. John Monett;
S. 8625. William O'Brian;
S. 8700. Nathan Dodge;
S. 8796. Frank G. Treash;
S. 8801. Charles G. Allen;
S. 8809. Margaret E. Colby;
S. 8810. John E. Rogers;
S. 8811. Charles H. Wells; and
S. 8828. Sylvia Housiaux.

Mr. HEYBURN, from the Committee on Public Lands, to whom was referred the bill (S. 8822) providing for the relinquishment by the United States of certain lands to the county of Kootenai, in the State of Idaho, reported it without amendment and submitted a report (No. 907) thereon.

Mr. MARTIN, from the Committee on Claims, to whom was referred the bill (H. R. 17276) for the relief of S. R. Hurley, reported it without amendment.

Mr. SMITH of Michigan, from the Committee on Commerce, to whom was referred Senate concurrent resolution 80, submitted by himself on January 27, providing for a preliminary survey of the harbor at Lexington, Sanilac County, Mich., reported it without amendment.

RETIREMENT OF CERTAIN ARMY OFFICERS.

Mr. WARREN. From the Committee on Military Affairs I report back with an amendment the bill (S. 8906) to provide for the retirement of certain officers on the active list of the Regular Army who have been passed over in promotion by officers junior to them in length of commissioned service, and I submit a report thereon. I ask for the present consideration of the bill.

The VICE-PRESIDENT. The bill will be read for the information of the Senate.

The SECRETARY. The Committee on Military Affairs report to strike out all after the enacting clause and to insert:

That hereafter when an officer of the line of the Regular Army, whose original commission in the army is dated prior to October 1, 1890, and who has been passed over by his juniors in length of commissioned service in the same branch of the line, is retired under existing law, he shall be retired with the rank and pay of the grade which he would have attained if promotion in the several grades from second lieutenant to colonel, inclusive, had been carried out lineally and by seniority in the several branches of the line prior to the act of Congress approved October 1, 1890, regulating promotions: *Provided*, That nothing herein contained shall be construed to mitigate or remove loss of rank which any officer may have suffered by sentence of court-martial, action of examining board, or voluntary transfer: *And provided further*, That nothing herein contained shall be construed to deprive any officer upon retirement of the rank he now holds, to which he may attain at any future time, or to which he may be entitled by law upon retirement.

Mr. CULBERSON. Before consent is given for the consideration of the bill I should be glad if the Senator in charge of it would explain it.

Mr. WARREN. I think it will take but a moment.

There has been a cause of friction for some years in the army. It came about from changes in the law. For many years promotion was regimental up to the grade of captain. In 1874, and again in 1890, the law was changed. Still later, in 1898, lineal promotion was provided for in each arm of the service all through the army up to and including the grade of colonel. These changes in the law affected some 200 or 250 officers. There have been bills before us for our consideration for many years, in the Senate Committee on Military Affairs, undertaking to regulate the rank of all those who suffered by changes in the law. But naturally there is much opposition to lowering in any way the rank and pay of officers who have been raised, even though through unjust or erroneous legislation, or to passing officers of lower rank over those of a higher rank, even to correct error.

Finally, it is the opinion of the committee that by this proposed law, which applies only to 20 officers and applies only then after their retirement, the acute situation is rendered more acceptable to a large class, and it ought to be to all, in that while it does not change the situation as to rank and pay of officers while in active service, it does provide that when an officer reaches the time of retirement he may be retired at the same grade he would have attained if he had been properly promoted up to that time.

It will apply to 9 cavalry officers and to 11 infantry officers, none of whom will be raised at retirement more than one grade, with one exception, where an officer will be raised two grades; that is to say, he will be raised from major to colonel when he retires. The others will go from lieutenant-colonel to colonel.

Mr. CULBERSON. Is the bill reported unanimously from the Committee on Military Affairs?

Mr. WARREN. It is.

Mr. HALE. Mr. President——

The VICE-PRESIDENT. Does the Senator from Wyoming yield to the Senator from Maine?

Mr. WARREN. Certainly.

Mr. HALE. As the Senator knows, our experience with statutes of this kind, passed without discussion, has shown that very important and extensive results come from bills touching the pay of both the army and the navy upon the active and retired lists. I have great confidence in the investigation the Senator from Wyoming would make in any matter of this kind, but we must consider what has been our experience in the past. I know I have found that in the case of bills affecting the pay, rank, and promotion of officers in the navy by a simple bill supposed to affect but very few we have afterwards learned that in operation it affects a great many.

Is the Senator from Wyoming in charge of this bill absolutely certain not only as to the facts and the merits of the officers who will be affected, but that those who will be advanced and their pay increased by the bill are only in number the few whom he has stated? Is the Senator absolutely certain that the bill will not be found to affect a larger number—classes—in the army, and that we shall not discover and he will not discover that it is much wider and more far-reaching than either we should contemplate or he would desire?

As I have said, I have learned to be very careful about bills that change the grade and rank and pay of a few officers. A good many men get in under such a bill afterwards. Has the Senator, if it is necessary, so guarded his bill that no "back pay," as we call it—no increase of pay, no advanced pay—will be claimed by the beneficiaries of the bill under its provisions?

Mr. WARREN. Mr. President, I realize fully the wisdom and pertinence of the inquiry of the Senator from Maine. We are all liable to be mistaken; but I will say to the Senator and to the Senate that this matter has been studied over more, perhaps, than any other in regard to the army or army pay. It has been under agitation for a number of years. The present Secretary of War and his two predecessors have had it under consideration. It has been referred to the staff for a working out as to how it would apply generally. It was first considered along the lines of reorganizing the entire promotion plan, taking every officer who was affected—some two hundred and odd—and putting all of them, as fast as changes could be made, in the places which they would have attained by application of the straight plan of general lineal promotion. But, naturally, owing to the opposition of those who have gained by the other method of promotion, the difficulty in deciding, and the very danger the Senator from Maine speaks of, that mistakes might be made and those for whom the legislation was not intended might make claims under it, it was finally decided to offer restitution only at retirement, and not before, to those few who could never hope to reach the grade they would have attained through lineal promotion, and who at retirement would suffer the balance of their lives one grade, and in one case two grades, by reason of their having been overslaughed.

The matter has been carefully investigated by expert officers in the War Department, and the names of all officers who have made any claim, and, in fact, all of those who, under figures and dates and records, can possibly have any claim, have been tabulated. We have the tabulations in the committee room. It seems to me to have been worked out carefully and completely.

I am very willing to state that, as far as I am concerned and my investigations run, I believe the bill will provide for only 20 officers and that it can not exceed seventy-five hundred dollars a year at any time, and will be as much less than that as may be caused through deaths that may occur in the meantime.

Mr. HALE. I did not hear the Senator's last statement.

Mr. WARREN. I will say to the Senator and to the Senate that these 20 or 30 officers can get no benefit whatever from this legislation until their time of retirement, say, at 64 years of age. If all of them should retire at the same time and all of them should live, the additional expense to the Government would not exceed $7,500 per annum for the time be-

tween their retirement and their death. But of course they retire at different dates and deaths may ensue, so that the total amount can never be very large. It would probably be much less than $100,000 for all during their lifetime, as I figure it on the ordinary tables of mortality. It applies only to these 20 officers, and applies only to those who would otherwise lose at retirement.

Mr. HALE rose.

Mr. WARREN. Excuse me a moment. As to the others, it would not include the 225 or 250. They are suffering injustice to-day. They have been deprived, and they will continue to be deprived, during their active service of one or, perhaps in a few cases, of two grades which they would have enjoyed through lineal promotion. They will, under this bill, reach the same point at retirement and receive the same pay thereafter that they would have received if they had not been overslaughed.

So this applies simply to those officers whom we can not otherwise provide for unless we make an overturning which would result in the displacement of from 200 to 250 officers.

Mr. HALE. Under that statement there would, of course, be no retroactive effect.

Mr. WARREN. Not only that, but it applies only to those who were affected up to a certain date, the legislation of 1890, and it can have no effect as to promotion hereafter, because the law now, and since 1898, has provided for straight lineal promotion.

Mr. BACON. I should like to ask the Senator a question, to see if I understand this matter properly. As I understand the proposed legislation, it grows out of the fact that there has been a change in the law of promotion, and under the old law a man's promotions depended upon vacancies in his own corps.

Mr. WARREN. In his own regiment.

Mr. BACON. In his own regiment. When I said "corps," I meant in a generic sense the corps, the organization to which he belonged. I did not mean a corps of the army.

Mr. WARREN. Will the Senator allow me right there to explain one point?

Under the old law promotion was regimental up to the grade of captain, so that a second lieutenant and a first lieutenant in a regiment where there were few deaths, or none, and no resignations, might remain as second lieutenant and first lieutenant until he was perhaps 50 years or more old, while his classmate in another regiment might reach a captaincy at 30 or 35.

Mr. BACON. Under the present law the promotion is regulated——

Mr. WARREN. It is now lineal promotion all the way up from second lieutenant to colonel, inclusive.

Mr. BACON. Regardless of the particular regiment to which the officer may belong?

Mr. WARREN. Yes.

Mr. BACON. But it is limited to his arm of the service, is it not? In other words, the creation of a vacancy in the cavalry can not promote a man in the infantry?

Mr. WARREN. In a certain way, of course, up to general officers they go together in the lineal list; but it does apply to each line—cavalry, artillery, and infantry—as the Senator states.

Mr. BACON. Separately?

Mr. SCOTT. If the Senator from Wyoming will yield to me, I will say to the Senator from Georgia that he will see the injustice in many cases where officers were retarded in their promotion. By the old regimental plan of promotion a youngster would go ahead of the man who was his instructor at West Point. It is intended to cure that.

Mr. BACON. And under the change of law such irregularity or injustices, you may say, as were practically accomplished under the old law have been perpetuated in the promotions under the new law?

Mr. WARREN. Certainly.

Mr. BACON. And it is designed to correct that inequality?

Mr. WARREN. It is to correct that so far as it applies——

Mr. BACON. To the question of retirement?

Mr. WARREN. To the retirement, and to that only.

Mr. BACON. I did not catch the statement of the Senator as to the number of officers who would be included.

Mr. WARREN. There are 9 in the cavalry, 11 in the infantry, and none in the artillery, because the addition of extra regiments and additional men has corrected the inequalities in that arm sufficiently, so that at retirement time they will all reach the point they would have reached if they had gone out on the lineal list.

Mr. BACON. The question I wish to propound to the learned Senator is this: There are only a few of these officers, and those few officers are known?

Mr. WARREN. Yes.

Mr. BACON. In other words, their number can not be added to.

Mr. WARREN. No.

Mr. BACON. Would it not be well, in order to meet the suggestion of the Senator from Maine in a practical way, instead of having a general bill, to have a bill which should name those officers, as there are very few of them.

Mr. WARREN. We consider it bad legislation to legislate personally for officers by name where it can be avoided, and it is always avoided when possible.

Mr. BACON. I quite agree with the Senator.

Mr. WARREN. The report which accompanies the bill, and which I ask may go into the RECORD, gives the names of all of them. I think it would be bad legislation to put the names in the bill.

Mr. BACON. If the report gives the names, of course that accomplishes the same purpose.

Mr. TILLMAN. Has the report been read?

Mr. WARREN. It has not.

Mr. TILLMAN. I think those of us who have not had an opportunity to examine the bill should hear the report before we are called upon to vote on it.

Mr. BACON. I understand that the report substantially embodies what the Senator from Wyoming has stated.

Mr. WARREN. It does.

Mr. TILLMAN. If it is not very long, I should like to have it read.

Mr. WARREN. It is a report of considerable length. I ask that it be printed in the RECORD.

There being no objection, the report (No. 903) was ordered to be printed in the RECORD, as follows:

The Committee on Military Affairs, to which was referred the bill (S. 8906) to provide for the retirement of certain officers on the active list of the Regular Army who have been passed over in promotion by officers junior to them in length of commissioned service, has carefully considered the same and hereby reports it to the Senate favorably, with recommendation that it be passed amended as follows:

Strike out all after the enacting clause and insert in lieu thereof the following, which is practically the same matter in a more condensed form and in language and arrangement approved by the Judge-Advocate-General of the Army and indorsed by the Secretary of War in letter dated January 28, 1909, quoted hereafter in this report:

That hereafter when an officer of the line of the Regular Army, whose original commission in the army is dated prior to October 1, 1890, and who has been passed over by his juniors in length of commissioned service in the same branch of the line, is retired under existing law, he shall be retired with the rank and pay of the grade which he would have attained if promotion in the several grades from second lieutenant to colonel, inclusive, had been carried out lineally and by seniority in the several branches of the line prior to the act of Congress approved October 1, 1890, regulating promotions: *Provided*, That nothing herein contained shall be construed to mitigate or remove loss of rank which any officer may have suffered by sentence of court-martial, action of examining board, or voluntary transfer: *And provided further*, That nothing herein contained shall be construed to deprive any officer upon retirement of the rank he now holds, to which he may attain at any future time, or to which he may be entitled by law upon retirement.

In the early history of the army the rule established for promotion of officers was to promote captains and field officers lineally and by seniority in the arm of service to which he belonged; that is, a cavalry captain, major, or lieutenant-colonel was promoted when he became the senior of his grade in the cavalry arm, and similarly for the infantry and artillery.

A lieutenant was promoted to a captaincy when he became the senior in his regiment.

The result of this system of promotion was that in regiments where many vacancies occurred the lieutenants received rapid promotion, but in regiments where few vacancies occurred promotion was slow.

When an officer reached the grade of captain he was assured his promotion when he became the senior of his grade in his arm, but the operation of the law gave promotion from lieutenant to captain such variations that many lieutenants of regiments where promotion was rapid got their captaincy long before others who entered at the same time or before them in regiments where promotion was slow.

An examination of a page of the Army Register of the time would show captains who were commissioned as second lieutenants on the same day standing far apart. For example, take 10 captains who entered on the same day. They might stand 1, 3, 6, 10, 11, 13, 20, 27, 30, 32, and even with wider variations than this.

Frequently some officers reached the grade of major while others who entered at the same time were far down on the list of captains, and not infrequently officers found others who entered years after them commanding a battalion, regiment, or post in which the officer with the longer service served in a subordinate position.

This system always held out a chance for an officer who lost in promotion as a second lieutenant to gain as a first lieutenant all or a part of what he had lost, and he might reach his captaincy in approximately his proper place.

All appreciated that this was the law and abided by it cheerfully, trusting to luck. A regiment that had slow promotion was likely later to have rapid promotion. When the statutes were revised in 1874, whether by accident or design, section 1204, regulating promotion, was changed materially in the wording from the older statutes of 1812 and 1814.

The statute of 1812 reads:

"* * * That the military establishment authorized by law previous to 12th day of April, 1808, and the additional military force raised by virtue of the act of the 12th of April, 1808, be, and the same are hereby, incorporated, and that from and after the passing of this act the promotions shall be made through the lines of artillerists, light

artillery, dragoons, riflemen, and infantry, respectively, according to established rule."

The statute of 1814 reads:

"* * * That from and after the passing of this act promotions may be made through the whole army in its several lines of light artillery, light dragoons, artillery, infantry, and riflemen, respectively; and that the relative rank of officers of the same grade, belonging to regiment or corps already authorized, or which may be engaged to serve for five years, or during the war, be equalized and settled by the War Department, agreeably to established rules; and that so much of the act * * * of 1812 * * * is hereby repealed."

Section 1204, Revised Statutes, reads:

"Promotions in the line shall be made through the whole army, in its several lines of artillery, cavalry, and infantry, respectively * * *."

The permissive "may" was replaced by "shall," and "according to established rule" was omitted.

Immediately following the adoption of the Revised Statutes, lieutenants began to protest that they were not receiving promotion in accordance with law, and that they were entitled to promotion by seniority and lineally in the arm and not in a particular regiment. The War Department, however, continued to promote them regimentally, and Army Regulations continued to provide regimental promotion. Frequent efforts were made to obtain promotion lineally, but without success.

These protests, and the hope of making promotion more equitable, led Congress, in October, 1890, to enact a law providing for lineal promotion in all grades, except first lieutenants, thinking that by leaving the grade of first lieutenant to be promoted according to existing law, the officers of this grade would even up somewhat. This was changed, in 1898, to apply to all grades from second lieutenant to colonel. This law established an equitable method for all officers then in the service in the grade of second lieutenant who had not been passed over by juniors, and for all officers entering thereafter; but since it placed all officers of each arm on a lineal list as they then stood, with the inequalities to that date, those who had been passed over by juniors became permanently fixed in the position and so remain to-day.

Several efforts were made to procure legislation which would adjust officers' rank according to length of service, and in 1892 such a bill (H. R. 328, 52d Cong.) passed the House of Representatives without opposition. The Senate committee reported the bill favorably with amendments, and as amended it passed the Senate; but the House disagreed to the amendments, conferees were appointed by both Houses, and the bill died in conference. The Senate amendments, which defeated the bill, were made because of the fact that there were many officers in the Regular Army who had received higher commissions than length of service would justify, on account of distinguished service in the Volunteer Army during the war of the rebellion, and the proposed adjustment could not be made without injustice to such officers.

The matter was then allowed to rest until 1907, when it was taken up again. Those who advocated the adjustment showed that the volunteers who would formerly have been affected had all either retired or reached a grade not subject to adjustment. The Chief of Staff caused an exhaustive history of promotion to be prepared, gave all the features of the proposed adjustment and all the arguments for and against it that had been submitted, and transmitted the record to the Secretary of War, who forwarded it April 1, 1908, to the Military Committees of Senate and House when returned to them, respectively, copies of bills S. 159 and H. R. 16502, Sixtieth Congress, which had been referred to him for report, and strongly recommended legislation to bring about the adjustment of rank.

These committees have not submitted reports upon the adjustment bills. It is questionable whether any legislation should be undertaken which would so completely upset the existing conditions, since there are about 250 officers affected—about 150 who have fallen behind and about 100 who have gone ahead.

But it is manifest that something should be done to give to those officers who have been so seriously passed over by their juniors in length of service and years that they will be retired for age with a lower grade than their companions of equal service, equal merit, and equal conditions.

The officers affected are few in number. About 9 in the cavalry and 11 in the infantry, who have been so left behind that they can not reach the grade which they would have attained if the laws for promotion prior to the act of October 1, 1890, had been the same as now, or which they would have reached if adjusted when the lineal act of October 1, 1890, was passed, or if adjusted now. If those officers who have gained over their less fortunate comrades had made the gain by any superior merit, or more arduous service in war, there would be reason for declining to give them relief, but a careful study of the records of officers and regiments shows no such reason.

In fact, some of the officers for whom relief is asked have rendered most efficient service, and all have excellent records. Certainly relief should be afforded them.

It is not quite seen how this can be done by adjustment of rank, nor how they can be benefited while on the active list, but they can without injury to anyone be allowed to retire with the grade to which their length of service entitles them, and on a par with their comrades, and with a grade commensurate with long and faithful service.

The operation of the bill will be as follows:

The War Department will prepare separate lists of officers of cavalry and infantry, arranged according to length of service. Owing to the recent increase of the artillery, all officers will reach the grade of colonel before retirement. The item does not apply to staff officers. When an officer is to retire under existing law, a comparison of this list with the officer's position on the Army Register will be made, and if he would have stood higher on the length of service list, he will be retired with that grade, provided he has not been reduced by a court-martial or examining board.

Any officer who will reach his grade of colonel naturally will desire to reach it on the active list, but there are a few who can not reach this grade, but who would have reached it if promotion had been equal for all. Officers will continue to clamor for the places to which they think they are entitled. This will give it to them when retired. An examination of the present army lineal list of officers will illustrate some of the glaring injustices and inequalities due to regimental promotion:

Major Bishop, cavalry, graduated in 1873; he stands behind Colonels Rodgers of 1875 and Dodd and Parker of 1876, and behind 16 lieutenant-colonels of cavalry who entered, 2 in 1873, 1 in 1875, 4 in 1876, 5 in 1877, and 3 in 1879.

Captain Scott, of cavalry, entered in 1880; he is behind 24 majors of cavalry who entered, 4 in 1880, 7 in 1881, 6 in 1882, and 7 in 1883.

Major Lassiter, of the infantry, who entered in 1873, is behind 14 colonels of infantry who entered in 1874, 1875, 1876, 1877, and 1879, and 33 lieutenant-colonels of infantry who entered from 1874 to 1880, and 4 majors of infantry, all of whom entered the service after him.

Others could be cited.

Some officers have been passed over by only 1 or 2 juniors, and this number is graded up to as high as 30 to 45. Of course the great majority can and will reach a colonelcy before retirement, but a few have been passed over by so many younger men that they can not get beyond the grade of lieutenant-colonel, and some the grade of major. These are the ones to whom it is desired to give justice.

As stated above in remarks about the adjustment bills, the number of officers who have been affected by regimental promotion number about 250. They have been passed over by their juniors in numbers varying from 1 to 50. But there are only 20 officers—9 in the cavalry and 11 in the infantry—who have been so seriously passed over that they can never reach the grade which they would have attained if promotion had been lineal since their entry into the service.

The excess of pay—that is, the actual additional cost to the Government provided all these 20 officers should be placed upon the retired list at once—would be not exceeding $7,500 per annum; but as their dates of retirement are distributed through numerous years, this maximum amount will, in all probability, never be reached at any one time.

The maximum pay of the grades affected are:

	Colonel.	Lieutenant-colonel.	Major.
Active pay	$5,000	$4,500	$4,000
Retired pay	3,750	3,375	3,000

It is thus seen that the active pay of a major is more than the retired pay of either a lieutenant-colonel or a colonel.

The following list shows the effect regimental promotion had upon the officers named, indicating the grade they would have attained before retirement had promotion by seniority in each arm of the line obtained prior to October 1, 1890, and the grade in which they must retire under existing conditions unless relief is afforded by legislation:

Cavalry (16 colonels, 17 lieutenant-colonels).

Name.	Number of officers, senior and younger, arranged by length of service in arm.	Would retire as—	Number of officers, senior and younger, as now arranged for promotion.	Will retire as—
1. Major Bishop	5	Colonel	22	Lieutenant-colonel.
2. Major Wheeler	19	Lieutenant-colonel.	34	Major.
3. Major Sickel	3	Colonel	18	Lieutenant-colonel.
4. Major Foster	9	do	26	Do.
5. Major Bremer	4	do	21	Do.
6. Major Macomb	10	do	21	Do.
7. Captain Scott	13	do	34	Major.
8. Captain Tate	11	do	31	Lieutenant-colonel.
9. Captain Goode	20	Lieutenant-colonel.	39	Major.

Infantry (30 colonels, 34 lieutenant-colonels).

1. Lieutenant-Colonel Cecil	14	Colonel	45	Lieutenant-colonel.
2. Lieutenant-Colonel Jackson.	26	do	36	Do.
3. Major Lassiter	6	do	50	Do.
4. Major Clark, W. O	19	do	34	Do.
5. Major Chynoweth	14	do	41	Do.
6. Major Kerby	28	do	61	Do.
7. Major Howe	18	do	42	Do.
8. Major Rowan	18	do	33	Do.
9. Major Cotter	22	do	36	Do.
10. Major Perkins	30	do	37	Do.
11. Major Arrasmith	61	Lieutenant-colonel.	68	Major.

The following letter states the Secretary of War's views favorable to the proposed legislation. The draft of the bill to which he refers is identical with the bill as amended, which your committee now reports:

WAR DEPARTMENT,
Washington, January 28, 1909.

DEAR MR. SENATOR: I have the honor to inclose a draft of a proposed bill to authorize officers who have been passed over in promotion by their juniors in length of service to retire with the grade which they would have attained if promotion of lieutenants had been lineal and by seniority prior to October, 1890, when a law was enacted changing their promotion from regimental to lineal.

The question of readjustment of the rank of officers, due to the inequalities in promotion under the regimental system, has been a vexing one for some years.

Last winter the Chief of Staff, under the direction of the Secretary of War, prepared an exhaustive report, giving the history of promotion in the army and showing the inequalities in promotion of officers of equal service and merit. The then Secretary of War (Hon. W. H. Taft), in returning to the chairmen of the Military Committees of both

Houses bills looking to the adjustment of rank in the army, strongly urged legislation to effect the adjustment. Realizing that it is difficult to enact legislation for this adjustment, when there are opposing factions among the officers concerned, it is believed that legislation in the form here set forth will give some relief to those officers most seriously hurt in promotion, not while on the active list, but it will enable them to retire with the grade they should, as a matter of equity, have received while on the active list, and with pay on the retired list equal to that of others whose services, merits, etc., were practically the same, but who enjoyed higher rank and pay for many years on the active list. There are but few officers of cavalry and infantry who can not reach the grade before retirement to which their length of service entitles them.

The recent increase in the artillery will enable all officers who were passed over in promotion by their juniors to reach the grade of colonel before retirement.

The provisions of this proposed bill, if embodied as an amendment to the appropriation bill would require no separate appropriation, as the usual appropriation for pay of the army would cover the few cases of retirement under its provisions from time to time, in view of the many and increasing number of deaths of officers now on the retired list.

This seems a just and equitable measure and meets with my approval.

Very respectfully, LUKE E. WRIGHT,
Secretary of War.

The Hon. FRANCIS E. WARREN,
Chairman Committee on Military Affairs,
United States Senate.

The VICE-PRESIDENT. Is there objection to the present consideration of the bill reported by the Senator from Wyoming?

There being no objection, the bill was considered as in Committee of the Whole.

The VICE-PRESIDENT. The question is on agreeing to the amendment of the Committee on Military Affairs, which has been read.

The amendment was agreed to.

The bill was reported to the Senate as amended, and the amendment was concurred in.

The bill was ordered to be engrossed for a third reading, read the third time, and passed.

IMPROVEMENT OF ANACORTES HARBOR, WASHINGTON.

Mr. PILES, from the Committee on Commerce, to whom was referred Senate concurrent resolution 85, submitted by himself yesterday, reported it without amendment, and it was considered by unanimous consent and agreed to, as follows:

Resolved by the Senate (the House of Representatives concurring), That the Secretary of War be, and he is hereby, directed to cause a survey to be made of the harbor at Anacortes, Wash., to determine the cost and advisability of its improvement.

BILLS INTRODUCED.

Mr. GALLINGER introduced a bill (S. 9068) granting a pension to Abby A. Thompson, which was read twice by its title and referred to the Committee on Pensions.

Mr. TELLER introduced a bill (S. 9069) for the relief of the estates of Jesse M. Blue and David Blue, which was read twice by its title and referred to the Committee on Claims.

Mr. OWEN introduced a bill (S. 9070) providing for the removal of the restrictions from Indian lands, and for other purposes, which was read twice by its title and referred to the Committee on Indian Affairs.

Mr. STONE introduced a bill (S. 9071) for the relief of the heirs of John Ruedi, deceased, which was read twice by its title and referred to the Committee on Claims.

Mr. BANKHEAD introduced the following bills, which were severally read twice by their titles and referred to the Committee on Claims:

A bill (S. 9072) for the relief of the estate of Samuel L. Gilbert, deceased;

A bill (S. 9073) for the relief of the estate of Andrew Reece;

A bill (S. 9074) for the relief of J. W. Murry, sr.;

A bill (S. 9075) for the relief of the estate of James L. Romine, deceased;

A bill (S. 9076) for the relief of heirs of H. O. Kilpatrick, deceased;

A bill (S. 9077) for the relief of James Barron;

A bill (S. 9078) for the relief of the heirs of Leonard Daniel, deceased; and

A bill (S. 9079) for the relief of Belson Wiley Owens.

Mr. PILES introduced a bill (S. 9080) to amend "An act making appropriations for sundry civil expenses of the Government for the fiscal year ending June 30, 1909, and for other purposes," approved May 27, 1908, which was read twice by its title and referred to the Select Committee on Industrial Expositions.

He also introduced a bill (S. 9081) granting an increase of pension to Edward Thornberry, which was read twice by its title and, with the accompanying papers, referred to the Committee on Pensions.

Mr. LONG introduced a bill (S. 9082) granting an increase of pension to John L. Brady, which was read twice by its title and referred to the Committee on Pensions.

Mr. RICHARDSON introduced a bill (S. 9083) granting a pension to Sarah J. Vaughan, which was read twice by its title and referred to the Committee on Pensions.

Mr. BRANDEGEE introduced the following bills, which were severally read twice by their titles and referred to the Committee on Pensions:

A bill (S. 9084) granting an increase of pension to George W. Rowley; and

A bill (S. 9085) granting an increase of pension to John C. Bushnell.

Mr. BURKETT introduced a bill (S. 9086) granting an increase of pension to Silas M. Clark, which was read twice by its title and referred to the Committee on Pensions.

Mr. CARTER (by request) introduced a bill (S. 9087) granting an increase of pension to Lizzie Lynch, which was read twice by its title and referred to the Committee on Pensions.

Mr. DANIEL introduced the following bills, which were severally read twice by their titles and referred to the Committee on Claims:

A bill (S. 9088) for the relief of the estate of Horace L. Kent, deceased; and

A bill (S. 9089) for the relief of the estate of William L. Hollis, deceased.

Mr. FOSTER introduced the following bills, which were severally read twice by their titles and referred to the Committee on Claims:

A bill (S. 9090) for the relief of the heirs of Joseph L. Bernard and Anna Holmes Bernard;

A bill (S. 9091) for the relief of the estate of Patrick Dooling, deceased; and

A bill (S. 9092) for the relief of the Hibernia Bank and Trust Company, of New Orleans, La., successor to the Union Bank of Louisiana.

Mr. PAYNTER (by request) introduced a bill (S. 9093) for the relief of Francis Geenty, which was read twice by its title and, with the accompanying papers, referred to the Committee on Claims.

Mr. WARNER introduced a bill (S. 9094) granting a pension to John W. Toppas, which was read twice by its title and, with the accompanying papers, referred to the Committee on Pensions.

Mr. BAILEY (by request) introduced a bill (S. 9095) granting an increase of pension to John W. Ragan, which was read twice by its title and, with the accompanying papers, referred to the Committee on Pensions.

Mr. MARTIN introduced a bill (S. 9096) granting an increase of pension to Ella Palmer, which was read twice by its title and referred to the Committee on Pensions.

He also introduced the following bills, which were severally read twice by their titles and, with the accompanying papers, referred to the Committee on Claims:

A bill (S. 9097) for the relief of Tyree Brothers, of Norfolk, Va.; and

A bill (S. 9098) for the relief of James B. Clift, administrator of the estate of John Clift, of Stafford County, Va.

Mr. PENROSE introduced the following bills, which were severally read twice by their titles and referred to the Committee on Claims:

A bill (S. 9099) for the relief of the estate of Samuel Fitz, deceased; and

A bill (S. 9100) for the relief of H. J. Randolph Hemming.

He also introduced a bill (S. 9101) granting an increase of pension to Alexander Patterson, which was read twice by its title and referred to the Committee on Pensions.

He also introduced the following bills, which were severally read twice by their titles and, with the accompanying papers, referred to the Committee on Pensions:

A bill (S. 9102) granting an increase of pension to William Varian; and

A bill (S. 9103) granting an increase of pension to Robert McIntosh.

AMENDMENTS TO APPROPRIATION BILLS.

Mr. CULLOM submitted an amendment proposing to appropriate $5,000 for the erection on the brink of the Grand Canyon, in the Grand Canyon Forest Reserve in Arizona, of a memorial to the late John Wesley Powell, etc., intended to be proposed by him to the sundry civil appropriation bill, which was referred to the Committee on the Library and ordered to be printed.

Mr. SMOOT submitted an amendment proposing to appropriate $25,000 for the establishing of a fish-cultural station at some suitable point in the State of Utah, intended to be proposed by him to the sundry civil appropriation bill, which was referred to the Committee on Fisheries and ordered to be printed.

He also submitted an amendment proposing to appropriate $5,000 to increase the limit of cost for the public building at Provo, Utah, intended to be proposed by him to the sundry civil appropriation bill, which was referred to the Committee on Public Buildings and Grounds and ordered to be printed.

Mr. OWEN submitted an amendment authorizing the Secretary of the Interior to issue a patent in fee to the Benedictine Fathers of Sacred Heart Abbey, Oklahoma, for certain lands reserved for and occupied by the Sacred Heart Mission, etc., intended to be proposed by him to the Indian appropriation bill, which was ordered to be printed and, with the accompanying paper, referred to the Committee on Indian Affairs.

Mr. HEYBURN submitted an amendment providing for the adjudication of the claims of Neils Anderson and William Winchell and others whose land or improvements have been damaged by reason of the construction of reservoirs or canals in connection with irrigating lands on the Fort Hall Indian Reservation, etc., intended to be proposed by him to the Indian appropriation bill, which was referred to the Committee on Indian Affairs and ordered to be printed.

Mr. SCOTT submitted an amendment proposing to appropriate $8,400 to equip certain suburban school buildings in the District of Columbia with stationary chemical fire-extinguishing appliances, intended to be proposed by him to the general deficiency appropriation bill, which was referred to the Committee on Appropriations and ordered to be printed.

Mr. DIXON submitted an amendment authorizing the Secretary of the Treasury, upon requisition by the Secretary of the Interior, to advance to disbursing officers of the Government such sums as in the discretion of the Secretary of the Interior may be necessary to meet the current and contingent expenses of the work between the Office of Indian Affairs and other bureaus of the Government, etc., intended to be proposed by him to the Indian appropriation bill; which was ordered to be printed and, with the accompanying paper, referred to the Committee on Indian Affairs.

IMPROVEMENT OF BLAINE HARBOR, WASHINGTON.

Mr. PILES submitted the following concurrent resolution (S. C. Res. 86), which was referred to the Committee on Commerce:

Resolved by the Senate (the House of Representatives concurring), That the Secretary of War be, and he is hereby, directed to cause a survey to be made of the harbor at Blaine, Wash., to determine the cost and advisability of its improvement.

TARIFF STATISTICS.

Mr. CUMMINS. I submit a resolution and ask unanimous consent for its immediate consideration.

The resolution (S. Res. 275) was read, as follows:

Resolved, That the Secretary of the Treasury be, and he is hereby, directed to inform the Senate as soon as practicable upon the matters following, to wit:

First. What was the aggregate amount received by the United States as duties upon imports during the last year upon those items, articles, or commodities upon which specific duties only are imposed?

Second. What was the aggregate amount received by the United States as duties upon imports during the same period upon those items, articles, or commodities upon which an ad valorem duty is imposed, or both a specific and an ad valorem duty?

Third. What was the entire expense of administering the law at the various ports of entry during the same period, not including any part of the expense of the office of the Secretary of the Treasury at Washington?

Fourth. What was the expense during the same period of administering at the several ports of entry that part of the law which imposes ad valorem duties either partially or wholly, not including the office of the Secretary of the Treasury at Washington?

Fifth. What was the aggregate value of imports during the same period paying specific duties alone?

Sixth. What was the aggregate value of imports during the same period paying ad valorem duties either in whole or in part?

Seventh. If all import duties had been specific during the same period, to what extent would the expense of administering the law have been diminished? Be it further

Resolved, That in construing the phrase "the last year" the Secretary of the Treasury may take any period of twelve successive calendar months ending not earlier than June 30, 1908.

The VICE-PRESIDENT. Is there objection to the present consideration of the resolution?

Mr. HALE. It is a very extended and complicated resolution. I move that it be referred to the Committee on Finance.

The motion was agreed to.

SALE OF INTOXICANTS TO INDIANS.

Mr. OWEN. Mr. President, I ask for the present consideration of the bill (S. 8553) to amend section 1 of an act approved January 30, 1897, entitled "An act to prohibit the sale of intoxicating drinks to Indians, providing penalties therefor, and for other purposes."

Mr. HALE. Has morning business been concluded, Mr. President?

The VICE-PRESIDENT. Morning business has not been concluded.

Mr. HALE. Let that be concluded, Mr. President, before other business intervenes.

The VICE-PRESIDENT. The Senator from Maine demands the regular order.

CLERKS AND MESSENGERS TO SENATORS.

Mr. CULBERSON submitted the following resolution (S. Res. 276), which was referred to the Committee on Appropriations:

Resolved, That on and after July 1, 1909, the Secretary of the Senate is hereby directed to pay out of the contingent fund of the Senate the sum of $420 per annum, in equal monthly payments, to clerks to Senators not receiving more than $1,800 per annum; and that the Secretary of the Senate is further directed to pay out of the contingent fund of the Senate the sum of $540 per annum, in equal monthly payments, to messengers to Senators who do not now receive more than $900 per annum, until otherwise provided by law.

HOUSE BILL REFERRED.

H. R. 26915. An act making appropriation for the support of the army for the fiscal year ending June 30, 1910, was read twice by its title and referred to the Committee on Military Affairs.

NATIONAL CURRENCY ASSOCIATIONS.

The VICE-PRESIDENT. The morning business is closed, and the Chair lays before the Senate a resolution coming over under the rule, which will be read.

The Secretary read the resolution (S. Res. 271) submitted by Mr. CLAY on the 1st instant, as follows:

Resolved, That the Secretary of the Treasury be, and he is hereby, directed to transmit to the Senate the names of the national currency associations formed under the act approved May 30, 1908, known as an act to amend the national banking laws, the names and location of the banks composing each association, the principal place of business of each association thus formed, the name and location of each bank belonging to any national currency association applying for an issue of additional circulating notes under the provisions of the act approved May 30, 1908, together with a list of the securities deposited for the redemption of such notes and the total amount of notes issued under this provision of law.

Mr. CLAY. Let the resolution lie on the table, subject to my call, Mr. President.

The VICE-PRESIDENT. It will be so ordered, in the absence of objection.

RELATIONS BETWEEN CONGRESS AND THE EXECUTIVE DEPARTMENTS.

Mr. TELLER. Mr. President, some days ago I gave notice that I would this morning call up Senate resolution 248, for the purpose of submitting a few remarks on it. I ask that it may now be laid before the Senate.

The VICE-PRESIDENT. The Chair lays before the Senate the resolution referred to by the Senator from Colorado, which will be read.

The Secretary read Senate resolution 248, submitted by Mr. BACON January 13, 1909, as follows:

Resolved, That any and every public document, paper, or record, or copy thereof on the files of any department of the Government relating to any subject whatever over which Congress has any grant of power, jurisdiction, or control under the Constitution, and any information relative thereto within the possession of the officers of the department, is subject to the call or inspection of the Senate for its use in the exercise of its constitutional powers and jurisdiction.

Mr. TELLER. Mr. President, in the closing days of the session I should not feel justified in taking up the time of the Senate except upon a matter of some importance. The resolution just read, under present conditions, seems to me to be of such importance to the Senate. I do not intend to spend any great length of time over it, but I wish to call attention to the report which was read in part here the other day, made in 1886 by the Judiciary Committee of the Senate, also to call attention to the report of the Attorney-General, made in 1854, and to make some allusion to the precedents which have been established by the Senate, beginning away back in the early history of the existence of our Government.

Mr. President, I do not contend that precedents made in the Senate are binding upon the Senate as precedents made by the courts of the country are binding on those courts; but precedents have everywhere been recognized as at least of sufficient force to apply on every subject that has been discussed amongst men. A precedent derives its force and importance from those who make it, the conditions under which it was made, and the length of time which has elapsed during which it has been adhered to.

I know very well, Mr. President, that usage can not change a law. It may sometimes establish a rule of conduct, and if continued for many centuries, it becomes, perhaps, of sufficient

force to be denominated a law; but usage is certainly to be considered in the construction of the meaning of statutes.

In 1886 a controversy arose in this body, to which the Senator from Georgia [Mr. BACON] referred the other day, and a very lengthy discussion followed the answer made by the President of the United States to a resolution of this body. I do not think that that can be cited as a case entirely like unto the present. That controversy arose because Mr. Cleveland, the then President of the United States, had removed a certain gentleman and appointed his successor. From 1867 to 1886 it had been the rule of this body when called to act on appointments made by the President under the statutes of that time to not only look into the question of the fitness of the person nominated, but also into the question of whether there were proper reasons for the removal.

I need not go into any explanation of how this question arose. Everybody who is familiar with the history of this country for the last forty-five or fifty years will be familiar with it. It arose pretty soon after the close of the civil war. It arose out of peculiar circumstances; and I am free to say that I do not believe such an act as that of 1867 could be passed now, nor do I believe it ever ought to have been passed. The controversy really between the Senate and the Executive in 1886 was, more than anything else, as to the power of removal by the Executive. The President asserted that we had no right to inquire why he had made the removal; that we should confine ourselves simply to the question of the fitness of the candidate he had nominated. The report made by the committee in that controversy has been presented to the Senate, and I desire to call attention to it very briefly. I am not going to read the report, and I am not going to spend a great deal of time over the report.

The question presented by the pending resolution I regard as one which ought to be settled, and I believe it has been settled. In 1886 I do not think there was really any controversy in the Senate as to the power of the Senate to call for information from every department of the Government, including the President himself, if we so desired. But the question was, Were the papers called for public or private papers?

Mr. President, I am willing to say that, in my judgment, there may be cases where the Senate and the other House might call for information which the Executive would be justified in withholding; but those are the exceptions. The rule may be well stated to be that the President of the United States should give to the Senate, and every head of a department should give to the Senate, the information called for, unless it can be shown to be an exceptional case, one out of the ordinary; and such is the case cited in Report 135, Forty-ninth Congress, first session, which was signed by all the members of the Judiciary Committee, either as a majority report or as views of the minority. There is really no difference of opinion between the majority and the minority, as will be observed if this report is studied, on the question of the right of the Senate to call for such information as is called for in this resolution. The controversy finally went off, upon the declaration of Mr. Cleveland, the then Executive, that the papers filed in the case which were called for specifically were papers not for the public records, but for his own private information, and that the Senate had no control over them.

The majority of the committee asserted unequivocally in their report, as they did on the floor in the debate, that there was no question of the authority of the Senate to call for information on anything within the jurisdiction of the Senate, and that anything the Senate could legislate upon or that it was necessary for the Senate to act upon was a legitimate subject of inquiry. That was as frankly admitted by the minority as it was by the majority.

The Senator from Georgia [Mr. BACON] read from the report. I will not now take the time to read the report, as there are other matters pressing on the Senate. I will simply state the conclusions reached. The report declared, as the resolution of the Senator from Georgia [Mr. BACON] recites, that "every public document, paper, or record, or copy thereof, on the files of any department of the Government, relating to any subject whatever over which Congress has any grant of power, jurisdiction, or control, under the Constitution, and any information relative thereto within the possession of the officers of the department, is subject to the call or inspection of the Senate for its use in the exercise of its constitutional powers and jurisdiction." This resolution is in strict conformity with the rule laid down in that report by both majority and minority.

The committee, composed of very prominent Members of this body, stated the law as is declared in this resolution. The minority of the committee stated with the greatest frankness that they did not controvert that question, but they said the conditions then before the Senate did not fall within that rule.

Mr. Cleveland claimed that the papers called for by the Senate were private papers addressed to him, and not addressed to him in his official capacity; that they were not on the files of the Department of Justice, and were not therefore public papers, and that the Senate could not call for his reasons for removal. I am frank to say that I believe that was the law. I myself very much doubt whether the Senate has ever had the right to inquire of the President why he removed a man from office. Of course if the President should abuse his position to the extent of removing a man without proper cause, I believe it would be in the power of the impeaching body of this Government to bring the President before this body by preferring articles of impeachment, because I think it would be a crime against the public if he should abuse a discretion intrusted to him by the Constitution to make selection of public officials by a mere whim.

In the case which called forth the resolution of the Senator from Georgia, the President of the United States has, in substance, said—I have not his message before me at this moment—that we have not the right to call upon the heads of departments for information. He has not exactly followed that with the statement that I suppose he would make if cross-examined, that we were perhaps entitled to that information, but had not gone to the right source for it.

I want to digress a moment and speak concerning the heads of the departments. There are a number of departments created by law. I do not find in any of the laws creating the departments—and I have examined them all—any suggestion anywhere that their heads are to exercise the functions of advisers to the President of the United States, except perhaps in the law creating the Department of Commerce and Labor, where we specifically declared that the Secretary of that department should make certain examinations and report the result thereof to the President of the United States. I do not suppose it will be contended by anybody that because the Secretary of Commerce and Labor is required to report to the President the idea is negatived that he should report to the Senate or to the other House when called upon in a proper case.

There is no provision of law constituting the head of a department a Cabinet officer. I have not found anywhere in any work on constitutional law or practice in this country any suggestion that sets apart the Secretary of the Interior or the Secretary of the Treasury or any other public official as an adviser to the President. In the early days of this Government it grew, as I understand, to be a custom—and that is all it is—for the President to have, perhaps not daily, but frequent meetings with certain heads of departments to consider public questions.

At an early day there was some controversy about this, but I can find nowhere that the President is required to consult the heads of departments, and I can find nowhere anything to indicate that because the President may consult them, they are not amenable to the law and amenable to the legislative department of the Government. I believe nobody contends—not even the President, I should judge, according to his statement—that Congress can not call on him for information.

But the present controversy does not arise in that way. I am not going to argue that Congress can call on the President for information. I suppose that will be admitted. If by a law we should say that the President should make certain reports to us, I suppose he would be compelled to make them; although I do not mean to say we could either add to or take away from any powers conferred on him under the Constitution; but, as the Constitution provides that he may voluntarily submit information to us, or he may furnish information when we request him to do so, I suppose that question need not be discussed.

The question simply is: Can one body of the National Legislature call upon any of the departments for information? Mr. President, it will not be supposed that one branch of the National Legislature would call on the President for information not required in the execution of the functions of that legislative body. We are a legislative body in connection with the House of Representatives; but we act absolutely independent of the House in exercising legislative functions, as the House acts independently of us. We negative the action of the House; the House negatives the action of the Senate. So each body does its work independently of the other, and each body is entitled to such information as will enable it to discharge its duties in a proper manner.

It has been the custom, I believe, in all legislative bodies where there are two houses, for each body to act on certain

matters independently of the other. The English House of Commons has always claimed since it has been recognized as a legislative body the right to call upon the Government for information. That right, so far as I know, has never been denied, except perhaps in the very early history of England; and nobody, so far as I can recall, ever asserted in that country that that function could only be exercised by the action of the House of Commons in connection with the House of Lords—the body known as "Parliament."

Mr. President, it would take me two or three hours to take up this question and cite the cases, beginning away back in the days of the first Presidents and following it up year after year, where the Senate of the United States has called upon the President of the United States for information and the President of the United States has replied. There are a few cases in which he did not fully reply to the inquiry; but in such cases he took it out of the rule by showing that the public interests might be injured by such a reply. We recognize that principle when we call upon the President of the United States to transmit information to us "if not incompatible with the public interest," and in practice we leave it to him to say whether such information will be incompatible with public interests. If the Senate is satisfied with that reply the matter ends there. At an early day the Senate of the United States called on the President of the United States to report to it in confidence certain facts. It was proposed to have at Panama a conference, called the "Panama conference," of all the South American Republics, in which we were to take part. The President was asked by resolution of this body to send it certain information, and the Senate added "in confidence." The President responded that he would reply in confidence, but that it must be left to the Senate itself to determine whether they would observe that confidence; that it must be left to the Senate to determine whether it would treat as confidential the papers that came to it in confidence. The Senate subsequently, after examining the papers, declared that it had a right to publish them without the consent of the President, and did so publish. This case proves that the Senate denied to the President the right to determine for the Senate what should be confidential.

I could read the correspondence in that case, but it is hardly worth while to do so at this time, because this is somewhat of an academic question anyway just now. With the change of administration before us, there may be a change of sentiment on this subject.

Mr. President, I desire to be as brief as possible; but I will call attention now to a report that was read here, in part, by the Senator from Georgia in the remarks which he submitted on this subject some days ago. First, however, I want to go back and call attention to some utterances of Caleb Cushing in an article that he submitted to the President, entitled "Office and duties of the Attorney-General," which was published in 1854, when Mr. Cushing was Attorney-General of the United States. The older Members of this body—those as old as I am—will have a very clear recollection of Caleb Cushing. Those who are familiar with history which occurred fifty or sixty years ago will also have a very clear recollection of him. That he was a great lawyer nobody ever denied. He was a man who, perhaps, was as badly criticised as any man ever in public life, and yet I believe no man assailed his integrity, and certainly no man assailed his ability. Fifty-four years ago is a good while. He then spoke of what was the law in this country and what had been the law in this country for many years, and what I assert here has been the law ever since, as can be seen by any Senator who will take the Messages and Documents, which, I presume, are in the possession of every one of us, and look over them and see the multitude of cases in which the Senate has called on the heads of departments and the President himself for information. I need not go into any argument to show that if you can call on the President of the United States for information, you certainly can call on the creature that Congress has created.

I wish to call the attention of the Senate to some statements made by Mr. Cushing. This is an opinion which I think every Senator would find useful if he would read it. We annually have read from the desk the Farewell Address of George Washington to the people of the United States. I have sometimes thought that if we would spend a little time in reading some other things the wise men have declared as to constitutional law we might get quite as much value as we can out of that able and interesting address.

Of course, Mr. President, Mr. Cushing was a state rights Democrat, but not more so than very many men who have held that office who were not members of his political organization. He says, on page 329, volume 6, under the head of "Office and duties of Attorney-General:"

> In the organization of the business of this department by this act facts perculiar as compared with the other two departments are prominent.

I will stop to say that the law creating one of these departments is unlike the other; but there are some things in the act establishing the Treasury Department, it being one of the early acts creating a department, which, I think, are worthy of consideration:

> One is that the Secretary of the Treasury, instead of being made subject only to the direction of the President by name, is required "generally to perform all such services, relative to the finances, as he shall be directed to perform;" which phraseology has relation to the provision of the act, that he shall "make report and give information to either branch of the Legislature, in person or writing, as he may be required, respecting all matters referred to him by the Senate or House of Representatives, or [and] which shall appertain to his office."

Mr. President, there are a few cases, and those during Washington's administration, where the head of a department has come before the Senate or House and given information. We have since adopted the other plan, of asking them to send it in writing. But there are a large number of cases, and many of them are within our own knowledge, where heads of departments have come before committees of the House or the Senate and discharged that function of giving information to the committees, and certainly, if they have recognized their responsibility in such cases, much more ought they to recognize their responsibility when the Senate or the House calls upon them for information.

Mr. President, I have marked a considerable number of points here that I desired to read, but knowing that the Senate is somewhat impatient at this time, I am going to skip them and call the attention of the Senate simply to the report and let them read it for themselves.

Speaking of the Secretary of the Interior—the Department of the Interior was created in 1849—and speaking of giving jurisdiction as to patents and general land matters, and so forth——

Mr. OVERMAN. I should like to inquire from what volume the Senator is reading?

Mr. TELLER. Volume 6 of the Opinions of the Attorney-General. By the way, I want to stop just a moment here to say—I will not read it—that Mr. Cushing goes on to state what these reports are. He says, of course they do not have the force that the opinions of courts have, but he says it has grown to be a practice, at least in the departments, that the opinions of the Attorney-General have great force; and that we know. There is scarcely a head of a department who would undertake, if a matter has been submitted to the Attorney-General, as is frequently done, to gainsay the opinion of the Attorney-General on the matter.

> This act, it should be observed, does not provide in terms that the Secretary of the Interior shall be subject to the general direction of the President, as in the case of the Secretaries of State, War, Navy, and Postmaster-General.

And yet, Mr. President, everybody will understand and admit, I suppose, that in practice he has been just as much subject to the President's dictation and control as the head of any other department.

> On the other hand, none of the acts, except that establishing the Treasury Department, subject the chief executive officers to the duty of responding to direct calls for information on the part of the two Houses of Congress.

As I have read, the law creating the Treasury Department requires him to respond to one House or the other.

> This, however, has come, by analogy or by usage, to be considered a part of their official business—

This was in 1854—

> And the established sense of the subordination of all of them to the President, has, in like manner, come to exist, partly by construction of the constitutional duty of the President to take care that the laws be faithfully executed, and his consequent necessary relation to the heads of departments, and partly by deduction from the analogies of statutes.

Mr. President, on page 344 of this opinion—it is a lengthy opinion—the Attorney-General sums up, and I can not better explain this matter than to read what he says:

> Upon the whole, then, heads of departments have a threefold relation, namely, (1) to the President, whose political or confidential ministers they are, to execute his will, or rather to act in his name and by his constitutional authority, in cases in which the President possesses a constitution or legal discretion; (2) to the law; for where the law has directed them to perform certain acts, and where the rights of individuals are dependent on those acts, then, in such cases, a head of department is an officer of the law, and amenable to the laws for his conduct; and (3) to the Congress, in the conditions contemplated by the Constitution.

The courts have said, under such a condition as that, when a law has declared what the act of the officer shall be, the President of the United States can not interfere with him one way

or the other; that the law fixes his duty, and he must discharge his duty according to the statute. That is a plain, common-sense principle, and it hardly seems necessary to cite decisions of the Supreme Court sustaining it. But several might be cited.

Mr. TILLMAN. May I ask the Senator from Colorado a question?

Mr. TELLER. Certainly.

Mr. TILLMAN. In the event a President should be inaugurated who would consider it in his power to forbid an Attorney-General to execute an act of Congress, what would be our remedy?

Mr. TELLER. I do not know, because it has never occurred in my experience. I hardly know what I would say to that inquiry, but I think it would constitute a subject for the House of Representatives, and I think if such an order was made by the Executive it ought to result in impeachment resolutions.

Mr. RAYNER. Mr. President——

The VICE-PRESIDENT. Does the Senator from Colorado yield to the Senator from Maryland?

Mr. TELLER. Certainly.

Mr. RAYNER. Is there any doubt in the Senator's mind that in a case of that sort the fact should be certified to the grand jury, under the Revised Statutes of the United States?

Mr. TELLER. I do not know but that it could be done. I think perhaps it could. But it seems to me the offense is not in the officer who declines to execute the law so much as it is in the Executive, who forbids his executing the law; and the responsibility ought to rest on the Executive and not on the subordinate.

Mr. President, I have some authorities I meant to read, but I have not brought the book with me. John Quincy Adams sent a communication to the Senate as confidential. The Senate considered it, discussed it, and several days later declared that it would not consider it confidential, and published it. I believe there are at least three cases which can be cited where, in defiance of the Executive, where the Executive has asked the Senate to keep a matter confidential, the Senate has declined to do so. John Quincy Adams, in responding to a Senate resolution of this kind, left it to the Senate to determine whether it should be published or not, recognizing that the Senate was the body to determine that question.

We had some controversy the other day about this question. I want to say that in 12 Peters there is a case entitled "Kendall *v.* The United States." Amos Kendall was Postmaster-General. I have forgotten exactly how the controversy arose, and it is quite immaterial; but it was contended before the Supreme Court of the United States that the Postmaster-General was not subject to congressional action or to the action of one body, which in that case was what it was, and the court said most distinctly that they declined to accept that as a proper statement of the law. I thought I had the case with me. It can be found in 12 Peters. I believe I have here a memorandum that will show exactly what the court did say. This is a citation from it. I will read it. In the case of Kendall *v.* The United States (12 Peters, 612) is found the following:

> It was urged at the bar that the Postmaster-General was alone subject to the direction and control of the President with respect to the execution of the duty imposed upon him by this law, and this right of the President is claimed as growing out of the obligation imposed upon him by the Constitution to take care that the laws be faithfully executed. This is a doctrine that can not receive the sanction of this court—

There is no dissenting opinion in this case—

> It would be vesting in the President a dispensing power which has no countenance for its support in any part of the Constitution, and is asserting a principle which, if carried out in its results to all cases falling within it, would be clothing the President with a power entirely to control the legislation of Congress and paralyze the administration of justice.

In another case, which is to be found in Butterworth *v.* Hoe (112 U. S., p. 50), the court said:

> The executive supervision and direction which the head of a department may exercise over his subordinates in matters administrative and executive do not extend to matters in which the subordinate is directed by statute to act judicially.

Mr. President, there is some distinction, I will admit, between asking the President of the United States or the head of a department for his opinion and asking him for information as to facts; and yet there can be found cases where the House and the Senate have respectively, singly and alone, asked the President for opinions in which the Presidents have given those opinions and their reasons for certain acts. If the President of the United States is asked why he does a certain thing, I presume, as a rule, he would be quite willing to state to the Senate or the House, whichever might make the inquiry, why he did it, and justify himself in his act. Possibly he might think it rather beyond our jurisdiction; but when that has been done, I have found no case where the executive officer has declined to act.

Mr. President, I have found a number of cases where the executive officer, sometimes the President, sometimes the heads of departments, has declined to furnish the information. I have found some cases where the House of Representatives has called for information that concerned only the treaty-making power, and the Executive has declined to furnish it. I have found several cases where they called upon the department for matters that touched only the treaty-making power, and yet the department had replied and furnished the information to the House.

I can readily see that in calling upon the Secretary of State for certain information when there were before him negotiations for a treaty or something of that sort there might be a condition where it might not be judicious and wise for him to respond, and I think there are several cases where they have so declined, and in all such cases I believe the House or the Senate has, without question, submitted quietly to that statement. I think there never has been a rule without exceptions. Probably there are some exceptions to the rule that the President of the United States and the heads of departments must reply to an inquiry from the Senate or the House. It is said that exceptions establish the rule. But there is one thing certain, I think, and that is that the Senate or the House will never insist upon the President or the heads of departments furnishing information where the executive officer in a proper spirit replies that he does not think it compatible with the public interest to supply the information. I do not believe there is any danger that the Senate will ever abuse this right or prerogative.

Mr. HALE. May I ask the Senator from Colorado a question?

Mr. TELLER. I yield to the Senator from Maine.

Mr. HALE. Has the Senator found in his investigation of this subject any case where either branch of Congress has called either upon the head of a department or the President for information and the reply has been that the situation involved delicate relations, treaty negotiations with foreign countries, and that the executive branch did not deem it compatible with the public interest to make reply to the interrogatories of either branch, and that response has not been accepted by the Houses of Congress?

Mr. TELLER. No, Mr. President; I have not.

Mr. HALE. But has not the Senator found several cases where the situation is such as I have imperfectly described, where Congress acquiesced in the report from the executive department, and thus in effect, so far as precedent goes, established the attitude of Congress that it will never seek to compel information or papers that involve any delicate relations or negotiations with foreign countries that ought not to be made public? There is no danger of either House taking that attitude.

Mr. TELLER. There is not the slightest danger, as shown by the history of the country. I have found a large number of cases where one House or the other asked for information in which the department from which it asked for it replied that, in the judgment of the department, it would be incompatible with the public interest to furnish it, but the department left that to the Senate or the House. I have found no case where such a response came that the Senate or the House followed it further, showing that we have recognized the right of the department to suggest whether or not it was proper, subject to the right of the Senate or House to determine for itself whether it would insist on the information. The worst case I have found is where the Senate, after it asked for a confidential communication from the President, and the President sent it and said he did not think it ought to be made public, made it public, the Senate not agreeing with the President.

Mr. BACON. Mr. President, with the permission of the Senator from Colorado, I desire to state an instance which occurred since I have had the honor of being a Member of this body, showing another way in which the same end has been accomplished.

During the Spanish-American war, at my instance, the Senate adopted a resolution directing the Secretary of War to communicate certain information to the Senate. The then Secretary of War, who was afterwards one of our colleagues, Mr. Alger, did not think it was safe to communicate that information in a way in which it might reach the public. He sought an interview and obtained it with the then chairman of the Committee on Military Affairs of this body, Mr. Hawley, of Connecticut, and stated to him his reasons why he thought it would be imprudent to respond to the resolution. Mr. Hawley communicated to me the reasons given by the Secretary of War.

I recognized the propriety of those reasons, and at my instance the direction was withdrawn by the Senate.

I am simply giving that as an illustration of the temper and purpose of the Senate, which will always animate this body.

Mr. HALE. If the Senator will allow me, that is precisely in line with the thought that animated me in the question I put to the Senator from Colorado, that in a case of that kind it will be so obvious that the information should not be made public that Congress always has and always will, as it did in this case, so pertinently cited by the Senator, recognize the condition.

Mr. BACON. And the Senate itself, at my instance, withdrew the direction.

Mr. HALE. In my mind there is no danger that either House will ever seek to compel information which, by virtue of conditions surrounding it, ought not, for the benefit of the public service, to be communicated. There is no danger of encroachment by Congress upon the powers of the Executive.

Mr. TELLER. I think the history of this country shows the correctness of the statement just made by the Senator from Maine. It is within the memory of most of us that immediately after the war there was a condition which never before existed in this country, and probably never existed in any other, and, I trust, never again will exist; and yet, with all the bitterness that arose out of the war, with the dislike of the Executive, with the intemperate zeal of the House membership, more particularly than in this body, although some of its was exhibited here, this rule has never been violated during the whole time.

I do not believe that ever the time will come when an executive officer, be he President or the head of a department, will declare that in his judgment matter should be withheld or that Congress, or one branch of Congress, will insist upon it being sent, unless it is a very clear case either of incompetency or something worse on the part of the head of a department.

Mr. President, we do not expect those things. We do not anticipate them. We do not legislate or go upon the theory that we will have a President of the United States who is untrue to the obligations he has taken. In the long line of Presidents that we have had we have had some controversy between the legislative department and the Executive, but only once did it rise to an attempt on the part of the legislative body to punish the Executive, and that is within the memory of all of us, when the House of Representatives impeached the then President, Johnson, and sent the case here to this body to be tried; and after weeks of trial he was acquitted. Even in that hour of bitterness and excitement justice was done. I do not hesitate to say that that was the most extreme exposition of political violence and political temper that has ever been exhibited in this country.

Mr. President, I do not believe, nor did I believe for a moment, that the House of Representatives was justified in that impeachment resolution. I know from absolute observation, sitting in the gallery the day it passed, that it was not the deliberate opinion carefully considered of that body, but it was the excitement of the moment which carried the resolution through. When it came to this body, the prosecution, conducted with the greatest ability by the greatest men then in public life, Members of the House, found in this Chamber men of both political parties who were ready to do justice to the Executive, and he was acquitted.

The verdict of the people then is, I hope, what the verdict of the people would be to-day, and you could not find in this whole land to-day a corporal's guard of people who do not approve what the Senate did when it rendered the verdict of acquittal.

Mr. President, we have gone through perilous times. We went through a war unlike any other war in the history of the world, a war between brothers, a war between Anglo-Saxons. When the war was over there was much bitterness, of course. It could not be otherwise. But there is not anywhere in the history of the world a country where strife of that kind has been settled so readily and so certainly as with us. It has shown the strength of American institutions. It has shown that the people of this country are a law-abiding and a law-observing nation.

Mr. President, it is when you look back to the history of this country and what it has gone through and the tests which have been applied that you may reasonably hope for a long continuation of this Government of ours on the principles under which it was originally established.

EXECUTIVE SESSION.

Mr. FRYE. I move that the Senate proceed to the consideration of executive business.

The motion was agreed to, and the Senate proceeded to the consideration of executive business. After three hours and forty minutes spent in executive session the doors were reopened, and (at 5 o'clock and 30 minutes p. m.) the Senate adjourned until to-morrow, Thursday, February 4, 1909, at 12 o'clock m.

CONFIRMATIONS.

Executive nominations confirmed by the Senate February 3, 1909.

POSTMASTERS.

WEST VIRGINIA.

James W. Hughes to be postmaster at Huntington, W. Va.
C. B. Stewart to be postmaster at Northfork, W. Va.

HOUSE OF REPRESENTATIVES.

WEDNESDAY, *February 3, 1909.*

The House met at 12 o'clock m.

Prayer by the Chaplain, Rev. Henry N. Couden, D. D.

The Journal of the proceedings of yesterday was read and approved.

BONDING GOVERNMENT OFFICERS.

Mr. ALEXANDER of New York. Mr. Speaker, I ask unanimous consent to discharge the Committee of the Whole House on the state of the Union from the further consideration of the bill (H. R. 24135) to amend an act entitled "An act making appropriations for the legislative, executive, and judicial expenses of the Government for the fiscal year ending June 30, 1896, and for other purposes," and to consider the same in the House at this time, which bill I send to the desk and ask to have read.

The Clerk read as follows:

Be it enacted, etc., That section 5 of an act entitled "An act making appropriations for the legislative, executive, and judicial expenses of the Government for the fiscal year ending June 30, 1896, and for other purposes," approved March 2, 1895, be amended so as to read as follows:

"SEC. 5. Hereafter the copy of the oath of office of subordinate officers of the customs, required to be transmitted to the Commissioner of Customs by section 11 of 'An act to amend existing customs and internal-revenue laws, and for other purposes,' approved February 8, 1875, shall be transmitted to the Secretary of the Treasury.

"Hereafter all bonds of the Treasurer of the United States, collectors of internal revenue, collectors, naval officers, surveyors, and other officers of the customs, either as such officers or as disbursing officers of the Treasury, bonds of the Secretary of the Senate, Clerk of the House of Representatives, and the Sergeant-at-Arms of the House of Representatives, and all such bonds now on file in the office of the Comptroller of the Treasury, shall be transmitted to the Secretary of the Treasury and filed as he may direct; and the duties now required by law of the Comptroller of the Treasury in regard to such bonds, as the successor of the Commissioner of Customs and First Comptroller of the Treasury, shall hereafter be performed by the Secretary of the Treasury; and all other bonds which are not required by law to be filed elsewhere shall be filed as the Secretary of the Treasury may direct.

"Hereafter every officer required by law to take and approve bonds shall cause the same to be examined at least once every two years for the purpose of ascertaining the sufficiency of the sureties thereon; and the Secretary of the Treasury shall make such inquiry as may be deemed necessary to ascertain the sufficiency of corporate sureties qualifying on bonds given to the United States and prescribe all necessary regulations governing their acceptance on such bonds before authorizing advances or payments of public moneys thereunder; and every officer having power to fix the amount of a bond shall examine it to ascertain the sufficiency of the amount thereof and approve or fix said amount at least once in two years and as much oftener as he may deem it necessary.

"Hereafter every officer whose duty it is to take and approve bonds shall require that new bonds be given at least once in every four years, but he may require such bonds to be strengthened or that new bonds be given oftener if he deems such action necessary: *Provided*, That when a new bond is given and approved under the provisions of this section, the surety or sureties on the prior bond shall be released from liability for all acts or defaults of the principal which may be done or committed after the date of approval of such new bond: *Provided further*, That the surety or sureties on such new bond, given during the same term of service, shall not be liable for any acts or defaults of the principal which may be done or committed prior to the date of approval of such new bond: *Provided further*, That in the discretion of an officer whose duty it is to take and approve official bonds the requirement of a new bond may be waived for the period of service of a bonded officer after the expiration of a fixed term of service, pending the appointment and qualification of his successor: *Provided further*, That the liability of the principal and sureties on all official bonds shall continue and cover the period of service ensuing after the expiration of a fixed term of service until the appointment and qualification of the successor of the principal; except that where a new bond is required from such officer, after the expiration of his term, the surety or sureties on the prior bond shall not be liable for any acts or defaults of the principal which may be done or committed after the date of approval of such new bond: *Provided further*, That a new bond required of an officer while holding over after the expiration of his term shall have the same force and effect as if given during his regular term of service: *Provided further*, That nothing in this act shall be construed to release the surety or sureties on the prior bond from liability under said bond in any case in which a subsequent bond or bonds may be required by the head of a department, or other approving officer, for the purpose, as clearly shown on the face of such subsequent bond or bonds, of strengthening said prior bond or bonds: *Provided further*, That the nonperformance of any requirement of this section on the part of any official of the Government shall not be held to

affect in any respect the liability of principal or sureties on any bond made or to be made to the United States: *And provided further*, That nothing in this section shall be construed to repeal or modify section 3836 of the Revised Statutes of the United States."

With the following amendment:

Page 3, line 12, after the word "prove," insert "official."

The SPEAKER. Is there objection?

Mr. FITZGERALD. Mr. Speaker, I reserve the right to object until there is some explanation of the bill.

Mr. ALEXANDER of New York. Mr. Speaker, the law as it now stands requires all bonds to be renewed at least once in every four years after their dates, so that every bonded officer of the Government must execute a new bond at least once in every four years similar to the bond originally given. In a decision dated June 17, 1899, construing the provisions of the act above referred to, the Comptroller of the Treasury says:

When a second bond is given under the same appointment or commission, without any changes in the duties of the officer, the giving of said bond does not operate to release securities on the first bond as to future transactions, but as to said future transactions the sureties on both bonds are jointly and severally liable.

Mr. FITZGERALD. Is not that a good thing for the Government?

Mr. ALEXANDER of New York. The whole purpose and the only purpose of this bill, which has been prepared by the Treasury Department and referred to the Judiciary Committee, which committee authorizes me to present it to the House, is to eliminate future transactions from the old bonds. Under the present arrangement bonds become cumulative. There is an officer in the Treasury Department who gave originally a $100,000 bond, but who now must furnish a $400,000 bond, simply because, under the decision of the comptroller, future transactions are not eliminated, as they ought to be. There are cases where five or six renewal bonds have been required of an officer for various reasons under existing law, all of which are held to be in force, and upon which such officer is liable for annual premiums. These conditions operate to impose great hardship upon bonded officials, all of whom are required to furnish their bonds at their own cost.

Mr. UNDERWOOD. Will the gentleman permit me to ask him a question?

Mr. ALEXANDER of New York. Yes.

Mr. UNDERWOOD. Is the effect of this bill retroactive in any respect?

Mr. ALEXANDER of New York. No, sir.

Mr. UNDERWOOD. The old bonds will all be held liable for past transactions?

Mr. ALEXANDER of New York. Yes.

Mr. UNDERWOOD. And the bill is so drawn that it will affect only the future?

Mr. ALEXANDER of New York. Yes.

Mr. NORRIS. Does it apply to all officers?

Mr. ALEXANDER of New York. To every bonded officer of the Government.

Mr. NORRIS. Regardless of the length of term for which they may be appointed?

Mr. ALEXANDER of New York. The officer must execute a bond every four years similar to the bond originally given.

Mr. NORRIS. Take the case of a man who is appointed to an office that runs four years, a definite time, do they hold that the bond he has given for that term, if he is reappointed to the succeeding term, will still operate?

Mr. ALEXANDER of New York. Yes.

Mr. NORRIS. And you want to eliminate that difficulty?

Mr. ALEXANDER of New York. As to future transactions.

Mr. MACON. Will the gentleman allow me to ask him a question? Is it possible that the bond which has been given four years before may become so dissipated that it would not be worth anything?

Mr. ALEXANDER of New York. I did not understand the gentleman.

Mr. MACON. I say, is it not possible that the guarantors on the bond in the first instance might become so impaired in their property to the extent that the bond would not be good for the last period?

Mr. ALEXANDER of New York. The law as it now is requires a new bond to be given every four years regardless of whether the officer is recommissioned or not.

Mr. MACON. How is it with those that have to be recommissioned?

Mr. ALEXANDER of New York. Then they must give an additional bond.

Mr. MACON. That is all right; that is the point I wished to reach.

Mr. ALEXANDER of New York. And it continues as to future transactions. This bill simply eliminates that part of the comptroller's decision as to future transactions.

Mr. NORRIS. Then I understand this simply prevents, practically, a duplication of bonds, so that the last bond is the one you rely upon, just as the first bond was the one you relied upon when it was given.

Mr. ALEXANDER of New York. Yes; as to future transactions.

Mr. NORRIS. To what decision does the gentleman refer—to a decision of the court?

Mr. ALEXANDER of New York. It is the decision of the Comptroller of the Treasury.

Mr. NORRIS. Has the question ever been passed on by a court?

Mr. ALEXANDER of New York. I do not know.

Mr. MANN. I think the gentleman from New York is in error when he inadvertently stated this would apply when a new commission issued. The decision of the comptroller was, where an officer was in office more than four years without a new commission being issued and the law required a new bond to be given at the end of the four years, that that did not relieve the bond first given and that the Government could rely upon both bonds.

Mr. NORRIS. But that decision would not apply where the term expired at the end of four years.

Mr. MANN. It would apply so far as the term expiring, but not if a new appointment was made.

Mr. NORRIS. That is what I understood.

Mr. MANN. The term might expire and the man hold over.

Mr. NORRIS. Or the term expire and the man is reappointed.

Mr. MANN. If the man is reappointed he gives a new bond.

Mr. NORRIS. And the old bondsmen are released.

Mr. ALEXANDER of New York. He must give a new bond every four years whether recommissioned or not.

Mr. MANN. That constantly occurs.

Mr. TIRRELL. I would like to ask the gentleman if, under existing conditions, it does not make a large additional expense upon these men who are bonded being compelled to keep the old bond alive in this way?

Mr. ALEXANDER of New York. Yes; a very large expense.

Mr. LIVINGSTON. May I ask the gentleman a question? When he gives a new bond, is that held responsible for anything that happened under the old bond, and vice versa?

Mr. ALEXANDER of New York. Under this bill the old bond will apply to old transactions. The new bond would hold as to future transactions.

The SPEAKER. Is there objection? [After a pause.] The Chair hears none.

The amendments were agreed to.

The bill as amended was ordered to be engrossed and read a third time, was read the third time, and passed.

AMENDING SECTION 2625, REVISED STATUTES.

Mr. ALEXANDER of New York. Mr. Speaker, I ask unanimous consent for the present consideration of the bill H. R. 24337.

The SPEAKER. The Clerk will report the bill.

The Clerk read as follows:

A bill (H. R. 24337) to amend section 2625 of the Revised Statutes of the United States.

Be it enacted, etc., That section 2625 of the Revised Statutes of the United States be, and hereby is, amended to read as follows:

"SEC. 2625. In the event of the absence of a collector, surveyor, or naval officer of customs from his office, or of a vacancy occurring therein, the duties and authorities vested in him shall devolve on his deputy, if any there be at the time of such absence or vacancy; and if there be no deputy they shall devolve upon such other employee of the office as the Secretary of the Treasury may designate. And the principal and the sureties on the bond of such collector, surveyor, or naval officer of customs shall continue to be liable for the conduct of the office while in charge of any such deputy or employee and for the acts or defaults of such deputy or employee during the continuance of the absence of the principal, or in the case of a vacancy occurring in said office, until the appointment and qualification of a successor to the principal on said bond."

Mr. FITZGERALD. Mr. Speaker, I reserve the right to object, to hear what this is.

Mr. ALEXANDER of New York. Mr. Speaker, I read four or five lines from the report, which explains the purposes of this bill:

The present law provides that the estate of a deceased customs officer shall be liable for the acts of his deputy until the appointment of his successor. It sometimes happens that such officers have no such estate as would afford the Government adequate protection. It is therefore believed that the law should specifically make the sureties on the bond of a collector liable for the acts of his deputy during the collector's absence or in the event of his death, or that the deputy should be separately bonded, or both.

Mr. MANN. Will the gentleman yield for a question?

Mr. ALEXANDER of New York. Certainly.

Mr. MANN. Under the law as it now exists, where there is a naval officer or some of these other officers, the man himself does not have the appointment of his deputy, and in case of the death of the principal the bondsmen are not liable for the acts of the deputy?

Mr. ALEXANDER of New York. Yes.

Mr. MANN. Not while the deputy holds office after the death of the principal.

Mr. ALEXANDER of New York. The collector is liable, and his estate is liable after his death. What is the gentleman's question? Perhaps I misunderstood him.

Mr. MANN. The bondsmen are not liable. That is what I say.

Mr. ALEXANDER of New York. No.

Mr. MANN. Now, here is the proposition: Here is an officer whose deputy is selected practically by the Government through the civil-service rules; the principal dies; the sureties may be very willing to insure the Government against loss by the embezzlement of the principal. Would they be willing to insure loss for some unknown person that they had no control over, that the principal himself does not appoint, and selected under civil-service rules? And what would be the effect upon the cost of bonds, and who now pays the cost of these bonds?

Mr. ALEXANDER of New York. Under this bill, if it becomes a law, the Treasury Department can compel the collector to give bond, or the deputy collector to give a bond, as it shall seem proper. The bill allows the bonding of either the principal officer or of his deputy. Under the circumstances, as the gentleman from Illinois [Mr. MANN] puts them, it would seem to be very proper that the Government should compel a deputy collector or a collector to give bond, as is done in other cases.

Mr. MANN. Of course there is nothing in this bill to require the deputy to give bond to the Government?

Mr. ALEXANDER of New York. It says:

It is therefore believed that the law should specifically make the sureties on the bond of a collector liable for the acts of his deputy during the collector's absence or in the event of his death, or that the deputy should be separately bonded, or both.

Mr. MANN. Now, the gentleman is reading from the recommendations of the department and not from the bill reported from his committee, which bill omits the very thing that the department requested.

Mr. ALEXANDER of New York. The department, under this bill, has it entirely within its control to compel the principal or the deputy to give bond, and I may say that in practice the deputies do give bond. Mr. Speaker, I ask for a vote.

The SPEAKER. Is there objection?

Mr. KEIFER. Mr. Speaker, I want to inquire whether this bill has had the consideration of any committee?

Mr. ALEXANDER of New York. It has had the consideration of the Department of Justice, the Treasury Department, and the Committee on the Judiciary, which reported it unanimously to this House.

Mr. LIVINGSTON. Do I understand the gentleman to say that the Department of Justice now holds the bondsmen of the collector responsible for the laches of the deputy?

Mr. ALEXANDER of New York. I did not say so.

Mr. LIVINGSTON. I understood the gentleman to say so.

Mr. ALEXANDER of New York. Mr. Speaker, I ask for a vote.

The SPEAKER. Is there objection?

Mr. STAFFORD. Reserving the right to object, I would like to ask a question: Is it within the power of the surety companies, as a condition of the bond, to determine the bond of the original officer in case at any time they so desire?

Mr. ALEXANDER of New York. I assume not. The bill simply requires that the collector give a bond covering himself and his deputy.

Mr. STAFFORD. Then, under this amended bill the surety would be responsible for the acts of other persons ad interim until the next principal was appointed?

Mr. ALEXANDER of New York. Yes. This would require the bonding company, or whoever the surety might be, to give a bond which would hold after the death of the collector.

Mr. STAFFORD. Hold until a new appointment was made?

Mr. ALEXANDER of New York. Yes.

Mr. STAFFORD. It might be an indefinite length of time. Does not the gentleman think that would be a hardship on the surety companies?

Mr. ALEXANDER of New York. That is wholly a question for the bonding company.

Mr. STAFFORD. Then, you think there will be no hardship in it?

Mr. PAYNE. I understand there is now such a law in regard to the collectors of internal revenue, and it is so stated in the report.

Mr. ALEXANDER of New York. Yes.

Mr. PAYNE. Does the gentleman know whether it has operated in any hardship or friction?

Mr. ALEXANDER of New York. I have not heard that it did.

Mr. PAYNE. Of course I can see very well how this can be made to apply to new bonds, but it can not be made retroactive.

Mr. MANN. Of course this would require every officer to give a bond.

The SPEAKER. Is there objection. [After a pause.] The Chair hears none.

The bill was ordered to be engrossed for a third reading; and being engrossed, it was accordingly read the third time and passed.

BONDS FOR CUSTOMS OFFICERS.

Mr. ALEXANDER of New York. Mr. Speaker, I have another bill, H. R. 27238; I ask unanimous consent for its consideration.

The Clerk read as follows:

A bill (H. R. 27238) to amend section 2619 of the Revised Statutes of the United States.

Be it enacted, etc., That section 2619 of the Revised Statutes of the United States be, and hereby is, amended to read as follows:

"SEC. 2619. Every collector, naval officer, and surveyor of customs shall, before entering upon the duties of his office, execute a bond of the United States in such form and for such amount as shall be prescribed by the Secretary of the Treasury, with two or more individuals, or a duly qualified bonding company as surety, to be approved by the Secretary of the Treasury and filed as he may direct, conditioned for the true and faithful discharge of the duties of the office according to law, and also conditioned for the safe-keeping, disbursement, and accounting for all public moneys which the Secretary of the Treasury shall cause to be placed to the credit of such officers, or either of them, by virtue of their office, out of any appropriations made or which hereafter may be made, and which it is desirable that such officers shall disburse."

Mr. ALEXANDER of New York. Mr. Speaker, I will read from the report the purpose of this bill.

The present law prescribes the form of bond for customs officers and requires the President of the United States to fix the amount of the bond. In all other cases under the Treasury Department the form of bond to be prescribed is left to the discretion of the Secretary of the Treasury, so that such forms are made broad enough to cover the maximum requirements which the service demands shall be imposed upon a bonded officer. Because of the fact that the form of customs bonds has heretofore been prescribed by law, it has not been possible to amend the form so as to make the sureties liable for the acts of such customs officer in the performance of duties so closely allied to his office that it is practically impossible to perform them through any other office, and yet which are not all made a part of his official duties under the law; such as the disbursement of funds in connection with the operation of the Revenue-Cutter Service, Marine-Hospital Service, Quarantine Service, Preventing the Spread of Epidemic Diseases, Construction of Public Buildings, Repairs and Preservation of Public Buildings, Pay of Assistant Custodians and Janitors, etc., and it has therefore been necessary to require of such officers separate bonds to cover each of said duties which the Secretary of the Treasury has found it necessary to assign to them.

In other words, the form of the bond at present is prescribed in section 2619 of the Revised Statutes, requiring the Secretary of the Treasury to follow the language without deviation, and requiring the President to fix the amount. This bill gives the Secretary of the Treasury the right to fix the amount and to amend the language to cover the performance of other duties closely allied to the office. Under existing law officers have been obliged to give separate bonds to cover the disbursement of funds in connection with the operation of these allied duties.

Mr. MANN. Does it repeal the old law?

Mr. ALEXANDER of New York. No.

The SPEAKER. Is there objection? [After a pause.] The Chair hears none. The Chair calls the attention of the gentleman from New York to what seems to be a clerical error in line 8, where the word "of" should be "to;" "bond to the United States" instead of "bond of the United States."

Mr. ALEXANDER of New York. It should be "to" instead of "of."

The SPEAKER. Without objection, the bill will be so modified.

There was no objection.

The bill as amended was ordered to be engrossed for a third reading; and being engrossed, it was accordingly read the third time and passed.

Subsequently,

The SPEAKER. Without objection, the bill H. R. 24338 will lie on the table, the recommendation made by the committee on the bill just passed at the request of the gentleman from New York [Mr. ALEXANDER]. The bill that is passed

takes the place of the bill indicated. Without objection, it is so ordered.

There was no objection.

CONDEMNED CANNON FOR ROBINSON, ILL.

Mr. FOSTER of Illinois. Mr. Speaker, I ask unanimous consent for the present consideration of the House joint resolution which I send to the Clerk's desk.

The Clerk read as follows:

Joint resolution (H. J. Res. 241) to authorize the Secretary of War to furnish one condemned bronze cannon and cannon balls to the city of Robinson, Ill.

Resolved, etc., That the Secretary of War be, and he is hereby, authorized and directed to furnish to the city of Robinson, Ill., one bronze or brass condemned cannon or fieldpiece, with its carriage and with suitable outfit of cannon balls, not needed for present service, the same to be mounted and used on the public building grounds at said city, and to be subject at all times to the orders of the Secretary of War: *Provided*, That no expense shall be incurred by the United States in the delivery of the same.

The SPEAKER. Is there objection? [After a pause.] The Chair hears none.

The joint resolution was ordered to be engrossed for a third reading; and being engrossed, it was accordingly read the third time and passed.

NAPOLEON GUN FOR THE STATE OF IOWA.

Mr. HULL of Iowa. Mr. Speaker, I ask unanimous consent for the present consideration of the bill which I send to the Clerk's desk.

The Clerk read as follows:

A bill (H. R. 27051) authorizing the Secretary of War to furnish one condemned brass or bronze "Napoleon" gun, carriage, and cannon balls to the State of Iowa.

Be it enacted, etc., That the Secretary of War be, and he is hereby, authorized and directed to furnish to the State of Iowa one condemned brass or bronze "Napoleon" gun, with carriage and with a suitable outfit of cannon balls, which may not be needed in the service, the same to be placed in front of the new historical building at Des Moines, Iowa: *Provided*, That no expense shall be incurred by the United States in the delivery of the same.

The SPEAKER. Is there objection? [After a pause.] The Chair hears none.

The bill was ordered to be engrossed for a third reading; and being engrossed, it was accordingly read the third time and passed.

GRADE CROSSINGS IN WASHINGTON, D. C.

Mr. WANGER. Mr. Speaker, I ask unanimous consent for the present consideration of the bill which I send to the Clerk's desk.

The Clerk read as follows:

A bill (H. R. 23468) to amend sections 11 and 12 of an act entitled "An act to provide for eliminating certain grade crossings on the line of the Baltimore and Potomac Railway Company in the city of Washington, D. C., and requiring said company to depress and elevate its tracks and to enable it to relocate parts of its railroad therein, and for other purposes," approved February 12, 1901.

The bill was read at length.

Mr. MADDEN. I object.

SUBPORTS OF BLAINE AND SUMAS, WASH.

Mr. NEEDHAM, from the Committee on Ways and Means, reported with an amendment the bill (H. R. 24140) extending the provisions of the act of June 10, 1880, concerning transportation of dutiable merchandise without appraisement, which was read a first and second time, referred to the Committee of the Whole House on the state of the Union and, with accompanying report (H. Rept. No. 2026), ordered to be printed.

RESIGNATION OF JUDGES OF UNITED STATES COURTS.

Mr. CAULFIELD. Mr. Speaker, I ask unanimous consent for the present consideration of the bill S. 4535, which I send to the Clerk's desk.

The SPEAKER. The gentleman from Missouri asks unanimous consent to discharge the Committee of the Whole House on the state of the Union from the further consideration of the bill and pass the bill with an amendment. The Clerk will report the title of the bill.

The Clerk read as follows:

A bill (S. 4535) to amend section 714 of the Revised Statutes of the United States, relating to the resignation of judges of the courts of the United States.

The SPEAKER. The Clerk will report the proposed amendment, the bill having been read.

Mr. MANN. Mr. Speaker, it would not be intelligent without reporting the whole bill. It is very short.

The SPEAKER. The Clerk will report the bill with the proposed amendment.

The Clerk read as follows:

A bill (S. 4535) to amend section 714 of the Revised Statutes of the United States, relating to the resignation of judges of the courts of the United States.

Be it enacted, etc., That section 714 of the Revised Statutes of the United States be, and the same is hereby, amended to read as follows:

"SEC. 714. When any judge of any court of the United States appointed to hold his office during good behavior resigns his office, after having held a commission or commissions as judge of any such court or courts at least ten years continuously, and having attained the age of 70 years, he shall, during the residue of his natural life, receive the salary which is payable at the time of his retirement for the office that he held at a time ten years before his resignation."

Mr. UNDERWOOD. Mr. Speaker, I reserve the right to object. I do not think the bill is clear. As I understand the proposition that the gentleman desires, it will retire a district judge on the salary of a district judge if he becomes a circuit judge. It does not seem to me that the language of the amendment as presented to the House carries with it that idea.

Mr. CAULFIELD. I will say that the Committee on the Judiciary considered this amendment carefully this morning, and they feel that the language will accomplish what is desired and meet all the objections that were made to the bill when it was up before.

Mr. MANN. Let me say to the gentleman from Alabama that the amendment provides that if a judge be retired he shall receive the salary of the office which he held ten years before his retirement; so that if he has been a district judge and then is appointed a circuit judge and retires, if he was a district judge ten years before his resignation, then he receives the salary that is paid to a district judge.

Mr. UNDERWOOD. I understood that was the proposition, and I have no objection to that; but from the reading of the bill, as I heard it from the Clerk's desk in the confusion, I do not understand it at all.

Mr. MANN. I do not wonder.

Mr. UNDERWOOD. If there is no objection, I ask that the bill be read again.

Mr. PARKER. I can give the exact language.

Mr. UNDERWOOD. I prefer to have the Clerk read it.

The SPEAKER. If there be no objection, the Clerk will again report the bill as amended.

The bill was again read by the Clerk.

Mr. UNDERWOOD. Now, I will say to the gentleman that it appears to me from the wording of the bill that if a judge held the office of district judge for ten years and was over 70 years of age, and was yet at the same time holding the office of circuit judge, he would get the retirement pay of a district judge and the salary of a circuit judge at the same time.

Mr. MANN. Oh, no.

Mr. CAULFIELD. Oh, no.

Mr. UNDERWOOD. I know that is not the intention.

Mr. CAULFIELD. It is only in the event of his resignation.

Mr. PARKER. The gentleman is confused by the words "payable at the time of his retirement." These words were put in to meet a case where the salary of a district judge may have been raised between the time that he sat on the bench as a district judge and the time that he retired. At the time that he retired, if he remained a district judge, he would receive the salary payable at the time of his retirement, and so the words were put in that he shall receive for the residue of his natural life the salary payable at the time of his retirement, for the office which he held ten years before.

Mr. UNDERWOOD. I will not take issue with the Judiciary Committee of the House, who have studied the bill.

Mr. PARKER. We have studied it very carefully.

Mr. UNDERWOOD. But I still question whether if he has retired as a district judge and been appointed a circuit judge he may not receive both salaries.

Mr. MANN. Oh, no.

Mr. UNDERWOOD. I will not object, because I defer to the opinion of the gentlemen on the Judiciary Committee.

Mr. MANN. I am not on the Judiciary Committee, but I have read the amendment very carefully.

Mr. UNDERWOOD. It seems to me there is a construction that can be placed on this bill that a judge can retire after ten years' service, being 70 years of age, if on the district bench, and yet receive a circuit judge's salary if appointed to the circuit bench.

Mr. MANN. No; there is no chance for it.

Mr. GAINES of Tennessee. I should like to inquire of the gentleman, so that I may be sure that I am right as to the information, if when a district judge has served ten years and is 70 years of age, and becomes a circuit judge and is then retired, is he to get the salary of a district judge, though he retires as a circuit judge?

Mr. CAULFIELD. Unless he has served ten years as a circuit judge, he will receive the salary of a district judge; but if he has served ten years as a circuit judge, then he will retire on a circuit judge's salary.

The SPEAKER. Is there objection? [After a pause.] The Chair hears none.

The amendment was agreed to.

The bill as amended was ordered to be read a third time, was read the third time, and passed.

RESURVEY OF PUBLIC LANDS.

Mr. MONDELL. Mr. Speaker, I ask unanimous consent for the present consideration of the bill (H. R. 24835) authorizing the necessary resurvey of public lands, with an amendment.

The Clerk read the bill, as follows:

Be it enacted, etc., That the Secretary of the Interior may in his discretion cause to be made, in the manner now provided by law, such resurveys or retracements of the surveys of public lands as, after full investigation, he may deem essential to properly mark the boundaries of the public lands remaining undisposed of: *Provided*, That no such resurvey or retracement shall be so executed as to impair the bona fide rights or claims of any claimant, entryman, or owner of lands effected by such resurvey or retracement.

The Clerk read the committee amendment, as follows:

In line 10 strike out the word "effected" and insert "affected."

The Clerk also read the following amendment, offered by Mr. MONDELL:

Amend by adding at the end of the bill the following:
"*Provided further*, That not to exceed 20 per cent of the total annual appropriation for surveys and resurveys of the public lands shall be used for the resurveys and retracements authorized hereby."

Mr. GAINES of Tennessee. Mr. Speaker, I reserve all points of order.

Mr. FITZGERALD. I reserve the right to object. What is the necessity for making all the resurveys of the public lands?

Mr. MONDELL. I do not know whether the gentleman was here the other day or not when this subject was discussed.

Mr. FITZGERALD. I do not know, either.

Mr. MONDELL. The matter was gone over quite fully, and the necessity for resurveys in many instances was pointed out. There was an objection made at that time, because there was no limitation of the amount of the appropriations that might be used for this particular purpose. The amendment I have introduced is for the purpose of meeting that objection. There are many reasons, as the gentleman knows, why these resurveys should be had.

Mr. FITZGERALD. I have one in mind. The statement was recently made to me that the surveys made by the General Land Office are notoriously bad.

Mr. MONDELL. I do not know who may have said that, but I do not think it is true.

Mr. MANN. That is one of the reasons for a resurvey.

Mr. MONDELL. This matter has been discussed a number of times in the House. There were surveys executed many years ago that were not well surveyed, it is true. In some cases the territory surveyed was of such a character, the country not having been settled, that in twenty or thirty years after the surveys were executed the surveys became obliterated. That is so particularly where the land is sandy or subject to erosion. In some instances surveys well executed are almost obliterated at this time, and it is impossible to dispose of the public land because boundaries are not determinable.

Mr. FITZGERALD. And the purpose of the bill is to make them certain?

Mr. MONDELL. Where they are necessary, after careful examination, to provide for the disposition of the public land.

Mr. MANN. I may say to the gentleman from New York that it will still be dependent on the appropriations recommended in the sundry civil bill and enacted by Congress.

Mr. FITZGERALD. The gentleman does not mean "recommended," but "decided upon" by Congress.

Mr. MANN. So that the department will be required to show reasons for the appropriation. As it is now, we have to pass special bills.

Mr. FITZGERALD. Who determines whether the survey is necessary or not?

Mr. MONDELL. We are called upon frequently to pass special bills for resurveys. The Committee on Public Lands and the department agree that it is not good practice, and that this is a much better and more economical practice, and more in the interest of the public service.

Mr. CLARK of Missouri. Is there any danger that by some kind of hocus-pocus they will go to work and resurvey all of the land out there again?

Mr. MONDELL. I think not, unless we get a Secretary of the Interior who is willing to violate the law.

Mr. MANN. There is no danger of that under the amendment offered.

Mr. CLARK of Missouri. I have known myself that in a great many of the surveys the corner marks become obliterated. The truth is there was a great deal of swindling originally in the public service in this way: Instead of putting a stone or a rock, or something of that kind, down as a monument so you could find it, they undertook to satisfy the law by putting down a match, or something of that kind, and of course they were easily obliterated. There are sections of land in my county that contain 720 acres instead of 640 acres.

Mr. GAINES of Tennessee. When the bill was up a few days ago there was an objection made——

Mr. MONDELL. This amendment is to meet that objection.

Mr. GAINES of Tennessee. Now, you say that not exceeding 20 per cent of the total annual appropriation for the survey or resurveys shall be used for that purpose. How much is the annual appropriation?

Mr. MONDELL. It runs from $250,000 to $400,000.

Mr. GAINES of Tennessee. I think it is a good bill, and I think it ought to pass. I am going to vote for it.

The SPEAKER. Is there objection?

There was no objection.

The amendments were agreed to.

The bill was ordered to be engrossed and read a third time, was read the third time, and passed.

FORFEITURE OF UNUSED RIGHTS OF WAY THROUGH THE PUBLIC LANDS.

Mr. MONDELL. Mr. Speaker, I ask unanimous consent for the present consideration of the bill (H. R. 24833) to declare and enforce the forfeiture provided by section 4 of the act of Congress approved March 3, 1875, entitled "An act granting to railroads the right of way through the public lands of the United States," with an amendment.

The SPEAKER. The Clerk will read the bill as it will read when amended.

The Clerk read as follows:

Be it enacted, etc., That each and every grant of right of way and station grounds heretofore made to any railroad corporation under the act of Congress approved March 3, 1875, entitled "An act granting to railroads the right of way through the public lands of the United States," where such railroad has not been constructed and the period of five years next following the location of said road, or any section thereof, has now expired, shall be, and hereby is, declared forfeited to the United States, to the extent of any portion of such located line now remaining unconstructed, and the United States hereby resumes the full title to the lands covered thereby free and discharged from such easement, and the forfeiture hereby declared shall, without need of further assurance or conveyance, inure to the benefit of any owner or owners of land heretofore conveyed by the United States subject to any such grant of right of way or station grounds: *Provided*, That no right of way on which construction is progressing in good faith at the time of the passage of this act shall be in anywise affected, validated, or invalidated by the provisions of this act.

The SPEAKER. Is there objection?

Mr. GAINES of Tennessee. Mr. Speaker, I reserve the right to object, and will ask the gentleman to explain the bill.

Mr. MONDELL. Mr. Speaker, when the bill was up for consideration a few days ago objection was made to the proviso on the ground that it might give an additional lease of life, or a new status, to certain rights of way; and as nothing of the kind was intended, the amendment was prepared to meet that objection, and provides that those rights of way that are not canceled by the bill shall be in nowise affected—validated or invalidated.

Mr. STAFFORD. Can the gentleman enumerate the reasons for this character of legislation?

Mr. MONDELL. The right of way act provides for forfeitures, providing certain conditions are not complied with. That forfeiture can not be enforced except by act of Congress or decision of the courts. This is a congressional forfeiture of certain rights of way. The time within which construction must be undertaken or completed has expired, with this exception, that where there may be any equities by reason of the fact that construction is now under way, we do not affect those rights of way. The necessity for this legislation arises from the fact that these rights of way stretch oftentimes for hundreds of miles across the public lands. They are a cloud upon titles, and the right of way is noted on the patent, whether the railway has been constructed or not. Further, if any other rights of way are sought for roads, for irrigation ditches, or other purposes, there is no way in which they can be granted except that the applicant for such right of way shall go into a federal court and have the forfeiture judicially declared. In 1906 Congress passed a bill similar to this, canceling these rights of way where there were no equities up to that time. This bill brings that forfeiture forward to the present time.

Mr. STAFFORD. What about the intervening cases since 1906?

Mr. MONDELL. It would affect the cases where filing was made between June 21, 1901, and a date five years prior to the date when this bill becomes a law.

Mr. STAFFORD. Why was it that the act of 1906 did not apply to those?

Mr. MONDELL. The act of 1906 could not apply to any cases where the limitation had not expired. This covers the cases where the limitation has expired since that time.

The SPEAKER. Is there objection? [After a pause.] The Chair hears none. The question is on the amendment.

The question was taken, and the amendment was agreed to.

The SPEAKER. The question now is on the engrossment and third reading of the bill.

The bill was ordered to be engrossed and read a third time, was read the third time, and passed.

BRIDGE ACROSS MONONGAHELA RIVER, BROWNSVILLE, PA.

Mr. COOPER of Pennsylvania. Mr. Speaker, I ask unanimous consent for the present consideration of the bill (H. R. 26829) to amend an act entitled "An act to amend an act to authorize the Fayette Bridge Company to construct a bridge over the Monongahela River, Pennsylvania, from a point in the borough of Brownsville, Fayette County, to a point in the borough of West Brownsville, Washington County," approved March 7, 1908, which I send to the desk and ask to have read.

The Clerk read as follows:

Be it enacted, etc., That section 7 of an act entitled "An act to amend an act to authorize the Fayette Bridge Company to construct a bridge over the Monongahela River, Pennsylvania, from a point in the borough of Brownsville, Fayette County, to a point in the borough of West Brownsville, Washington County," approved March 7, 1908, be, and is hereby, amended to read as follows:

"SEC. 7. That this act shall be null and void unless the construction of said bridge shall be commenced within one year from April 23, 1909, and shall be completed by April 23, 1912."

SEC. 2. That the bridge to be constructed under the provisions of said act shall be constructed in accordance with the provisions of the act entitled "An act to regulate the construction of bridges over navigable waters," approved March 23, 1906.

SEC. 3. That the right to alter, amend, or repeal this act is hereby expressly reserved.

With the following amendments:

On page 1, in lines 3 and 4, strike out the words "amend an act to," and on same page, in line 8, after the word "approved," insert the following: "April 23, 1906, as amended by section 1 of the act approved."

Amend the title as follows: In line 1 strike out the words "to amend an act," and in line 6 strike out the words "March seventh" and insert in lieu thereof "April 23," and in same line strike out the word "eight" and insert in lieu thereof the word "six."

The SPEAKER. Is there objection? [After a pause.] The Chair hears none. The question is on the amendments.

The question was taken, and the amendments were agreed to.

The SPEAKER. The question is on the engrossment and third reading of the bill.

The bill was ordered to be engrossed and read a third time, read the third time, and passed.

The title was amended.

CHAPLAIN HENRY SWIFT.

The SPEAKER laid before the House the bill (H. R. 2952) for the relief of Chaplain Henry Swift, Thirteenth Infantry, U. S. Army, with Senate amendments thereto.

The Senate amendments were read.

Mr. MILLER. Mr. Speaker, I move to concur in the Senate amendments.

The motion was agreed to.

LAFAYETTE L. M'KNIGHT.

The SPEAKER laid before the House the bill (H. R. 16015) for the relief of Lafayette L. McKnight, with a Senate amendment.

The Senate amendment was read.

Mr. HULL of Iowa. Mr. Speaker, I move that the House do concur in the Senate amendment.

The motion was agreed to.

ADOLPHUS ERWIN WELLS.

The SPEAKER laid before the House the bill (H. R. 10752) to complete the military record of Adolphus Erwin Wells, with a Senate amendment.

The Senate amendment was read.

Mr. HULL of Iowa. Mr. Speaker, I move that the House concur in the Senate amendment.

The motion was agreed to.

WILLIAM H. HOUCK.

The SPEAKER laid before the House the bill (H. R. 11460) to remove the charge of desertion from the military record of William H. Houck, with a Senate amendment thereto.

The Senate amendment was read.

Mr. CRUMPACKER. Mr. Speaker, I move that the House concur in the Senate amendment.

Mr. MANN. Will the gentleman yield for a question?

Mr. CRUMPACKER. Certainly.

Mr. MANN. What is the difference between the House bill and the Senate bill?

Mr. CRUMPACKER. The only difference is that the House bill authorizes an issuance of a discharge as of the 18th day of April, I think, 1864, a year before the alleged discharge.

Mr. MANN. I thought maybe it was a matter——

Mr. HULL of Iowa. It ought to have been 1865 instead of 1864.

Mr. MANN. I have no objection.

Mr. CRUMPACKER. That is all.

The SPEAKER. The question is on the motion of the gentleman from Indiana to concur in the Senate amendment.

The question was taken, and the motion was agreed to.

GEORGE H. TRACY.

The SPEAKER also laid before the House the bill (H. R. 20171) correcting the military record of George H. Tracy, with a Senate amendment.

The Senate amendment was read.

The SPEAKER. This is a House bill from the Committee on Military Affairs with a Senate amendment.

Mr. HULL of Iowa. Mr. Speaker, I move that the House concur in the Senate amendment.

The SPEAKER. The gentleman from Iowa moves that the House do concur in the Senate amendment.

The question was taken, and the motion was agreed to.

WITHDRAWAL OF PAPERS.

By unanimous consent, Mr. ENGLEBRIGHT was granted leave to withdraw from the files of the House, without leaving copies, the papers in the case of Homer L. Wells (H. R. 9686), first session, Sixtieth Congress, no adverse report having been made thereon.

AGRICULTURAL APPROPRIATION BILL.

Mr. SCOTT. Mr. Speaker, I move that the House do now resolve itself into the Committee of the Whole House on the state of the Union for the further consideration of the bill H. R. 27053, the agricultural appropriation bill.

The motion was agreed to.

Accordingly the House resolved itself into the Committee of the Whole House on the state of the Union for the further consideration of the bill H. R. 27053, the agricultural appropriation bill, Mr. FOSTER of Vermont in the chair.

Mr. LAMB. Mr. Chairman, I yield one hour to the gentleman from South Carolina [Mr. LEVER].

Mr. LEVER. Mr. Chairman, it will be remembered that when this bill was under consideration last year that there was much criticism of it because the amounts appropriated were not more definitely itemized. It was a criticism that appealed to the good judgment of the committee, as a result of which it will be noticed that this bill has been constructed with a view of providing the greatest possible itemization of the appropriations recommended. In the Bureau of Plant Industry, for instance, there are small appropriations, varying in amounts, to cover certain specific lines of work. These appropriations, in other bills, were carried in a general lump fund, and carried on the face of the bill—no information to the House as to the exact manner in which they were to be used. Every bureau, except that of Forestry, and there is good reason for this exception, has had its lump sum appropriated and defined according to the various lines of work being done. I mention this to establish the fact that the committee wisely adopted a policy of itemizing the bill, and to establish the further fact that this policy was pursued consistently throughout the bill, except as to the Bureau of Forestry, as mentioned already, and with the exception of one item, which carries an appropriation of $60,000, in the Bureau of Chemistry. That the committee should have failed to set out this item, that the House might see and understand it, was against my judgment, and members of the committee will remember that I gave notice in the committee that I felt it my duty to call the attention of the House to this failure.

The $60,000 recommended in the bill to which I refer is contained in the lump-sum appropriation for the Bureau of Chemistry and is recommended for the payment of the expenses of the Referee Board of Consulting Chemists, a board whose alleged function is a more thorough enforcement of the pure food and drug act of 1906. As I understand it, this board is a court of final resort to which appeals lie in disputes as to whether or not an article of food is misbranded or adulterated. My first thought in connection with this referee board was that it was

only necessary that it should be itemized in the bill—that is, that it should be specifically named and provided with a definite appropriation with which to meet its expenses. The idea had been conveyed to me that the functions of the board were in line with a better and more thorough enforcement of the pure-food act. A closer study of its functions and the reasons for its creation and its exercise of its functions convinces me now that it was created without authority of law and in response to the demands of the food adulterators of the country and that instead of providing an appropriation with which to continue it we should now declare, as the Representatives of the people, anxious for a faithful enforcement of the pure-food act, designed to protect the consumer and give the purchaser of an article a pure and wholesome food, a food which is what it is advertised to be, that no part of the money appropriated in this bill for the Bureau of Chemistry shall be used for the payment of any expenses incurred in connection with this so-called "referee board" or any other board, the exercise of whose functions can only have the effect of raising confusion and interfering with the Chief of the Bureau of Chemistry, who alone is charged with the statutory duty of preparing the data upon which the Secretary of Agriculture must act in the enforcement of the pure food and drug act.

For one, I enter my earnest protest against the policy of the creation of boards and commissions by whatsoever authority, whether the Secretary of Agriculture or the President of the United States, and without regard to the motive, which have not been contemplated by the law and which in the case in point are prohibited by the law.

Mr. Chairman, I wish to call attention to what seems to me a most remarkable procedure. And right here I wish to disclaim any intention of imputing improper motives to anyone. For Secretary Wilson I have the most unbounded respect. It is my purpose to criticise the judgment, not the motives, of men. I am confident that this referee board was appointed in good faith, even if without authority of law, with no other purpose in mind than that of making more simple the complex problem of the enforcement of the pure food and drugs act. The motive may have been ever so good, and yet the judgment is undoubtedly ever so bad.

In the act making appropriations for the Agricultural Department for the fiscal year ending June 30, 1909, an increase over the preceding year of an even $100,000 was given the Bureau of Chemistry. The purpose to which this increase was to be put is best understood by a reference to the examination of the chief of the Bureau of Chemistry at the hands of the House Committee on Agriculture. I read from the hearings of last year, pages 354–355:

The CHAIRMAN. You are asking for an increase of about $100,000 in your lump sum. Can you give the committee some reasons why that increase should be made?

Doctor WILEY. A part of that, Mr. Chairman, is for the normal growth of the various divisions of our work. For instance, our work in connection with the other departments is growing constantly. We have now, I suppose, sufficient work all the time to keep four or five chemists busy for the other departments of the Government. That is growing gradually. Then our investigations in various lines are naturally expanding some, but not much. I suppose $20,000 of this increase would be sufficient for the ordinary normal growth in the bureau for the next year. The greater part of it is for the expansion of the service in connection with the enforcement of the food and drugs act. We have a plan to erect five additional laboratories if this amount is given.

I also read from the same hearing, on page 363:

The CHAIRMAN. What do you pay these inspectors?

Doctor WILEY. The chief inspector, who directs the whole work, gets $2,500.

Mr. POLLARD. The chief inspector here in Washington?

Doctor WILEY. Yes; he is here in Washington. The others get from $2,000 to $1,200. I suppose the average is $1,600. They get all their traveling expenses, of course, when on duty.

Mr. LEVER. What portion of this estimated increase is to be used in getting more inspectors for this inspection?

Doctor WILEY. Part of this increase is for the establishment of these additional laboratories where there are none now, and part for the additional inspectors.

Mr. LEVER. How many additional inspectors do you want to get?

Doctor WILEY. After we get this increase we will have 10 more inspectors and 5 more laboratories, at least.

Mr. LEVER. It seems to me with your present force you can not very well enforce the pure-food act. Here is a great strip of territory up here that is absolutely uncovered.

Doctor WILEY. That is not covered.

Mr. LEVER. And here is another strip down here in Texas and New Mexico, and here is a great strip in here uncovered, and it looks to me like you need at least one in every State.

Doctor WILEY. In my estimates to the Secretary I asked for $200,000, but he thought $100,000 would be sufficient. But whatever you give us we will utilize the best we can.

You will notice that the chief of the bureau, in making his estimate for his bureau, had in mind a well-developed plan for which it should be expended, and nowhere can it be found that he ever intimated or gave the committee any idea that any of this appropriation should be used in any other way than that given to the committee as appears in his statement. I venture the assertion, without fear of contradiction, that there is not a member of the Agricultural Committee who considered the bill of last year who will rise in his place now and assert that he ever dreamed that any part of the sum appropriated to the Bureau of Chemistry was to be used for the payment of the expenses of a board created at the dictation of the President of the United States and beyond and outside of the control of the Bureau of Chemistry or its chief. If there is such member, I should be glad to have him rise in his place and give the House the benefit of his understanding of the reasons which prompted him in allowing this bureau a hundred thousand dollars increase. The chief of the bureau, Doctor Wiley, could not have had in mind any such idea, and this is established by another reference to his statement before the committee, which precludes the possibility of his having contemplated that any of his appropriation was to be used in the manner which I shall presently recite. (See Hearings, p. 356:)

The CHAIRMAN. Is there any appeal from the decision anywhere along the line?

Doctor WILEY. An appeal is often made from the decision of the board to the Secretary.

The CHAIRMAN. After the Secretary passes on it, is there then any appeal?

Doctor WILEY. The only appeal that can then possibly be made is to the courts, and no such appeal has ever been made in the six years in which this system has been in operation.

The only intimation found anywhere in Doctor Wiley's statement before the committee that there was in contemplation the possible creation of a commission or a board with final jurisdiction in matters touching the enforcement of the pure-food act is had on page 382 of the hearings, from which I read:

The CHAIRMAN. Up to this time you do not forbid the sale of these articles of food that have these preservatives in them?

Doctor WILEY. No. The regulation provides that all goods packed during the season of 1907 may go without hindrance into interstate commerce, provided they do not contain more than one-tenth of 1 per cent; but the object of that was to inhibit it in future years. That question is now carried up to another commission, and will be open until that commission makes its decision.

The CHAIRMAN. Who constitutes that commission?

Doctor WILEY. As I understand, it has not been appointed yet. The President is going to appoint it.

The CHAIRMAN. I thought he had appointed it.

Doctor WILEY. I do not think so. It has not been announced, at least.

I have searched the hearings carefully and this is all that can be found, and I am sure every member of the committee will agree with me that it was not in his mind that he was providing an appropriation which was to be used outside of the Bureau of Chemistry. The first intimation that I had that a Referee Board of Consulting Chemists had been created and that the $100,000 appropriated for the Bureau of Chemistry, in accordance with the suggestions of its chief as to its expenditures, had been diverted to the payment of the expenses of this board came to me in the statement of the chief of the bureau before the committee on January 5 of this year. I think a study of the interrogations and answers of members of the committee and Doctor Wiley on this date will develop the fact that even the chairman of the committee was somewhat surprised at the diversion of this $100,000 appropriation from the purposes for which it was intended. I read from the hearings, page 240:

Doctor WILEY. The previous year we had none. The first year we did not get a case to the courts, and they just began to come in last March. They are now coming in rapidly; we have 60 or more convictions, I could not give the exact number now, and the courts are just getting busy on this matter.

The CHAIRMAN. While looking up the allotments of your bureau for the current year, I noticed that $100,000 is set aside for the use of the referee board. Will you give us the names of the members of that board, and tell us how they are paid, and what expenses they incur that calls for $100,000; and also tell us what their duties are?

Doctor WILEY. Mr. Chairman, I am in very poor condition to answer your question, because all I know about it is just the fact that a certain amount of money was set aside for this board, and the disbursing officer informed me of that fact so that I would not be drawing on it for any of the ordinary expenses of the bureau; but I do happen to know the names of the referee board just incidentally, but not officially.

Mr. LEVER. By whose authority was this sum set aside?

Doctor WILEY. That I could not say. I imagine that the Secretary of Agriculture was the only one who had authority to do it.

Mr. LEVER. Did your notice come from him?

Doctor WILEY. No; from Mr. Zappone, the disbursing officer. I do not believe I can give the committee any valuable information on this subject, Mr. Chairman, because I myself am ignorant.

The CHAIRMAN. Have you no official relation to this referee board at all?

Doctor WILEY. None whatever.

Mr. LAMB. How many members compose the board?

Doctor WILEY. Five.

Mr. HASKINS. Is this the board before whom appeals are brought from your decisions?

Doctor WILEY. Yes, sir; a board which is reviewing the work that we did under the appropriation acts for the last seven or eight years, as I understand it.

Mr. HAWLEY. Under whose direction?

Doctor WILEY. I believe they are under their own direction—I really do not know.

Mr. RUCKER. I understand that the board examines into and supervises the work that your department does.

Doctor WILEY. Not at all; they have nothing to do with our work.

Mr. RUCKER. With whose work do they have to do?

Doctor WILEY. As I understand it, Mr. Chairman, this board is appointed to determine whether or not certain substances added to foods are wholesome or unwholesome.

Mr. RUCKER. Is not that the province of your department?

Doctor WILEY. Well, I could not answer in regard to that.

Mr. RUCKER. I did not intend to be too inquisitive.

Mr. LAMB. Can you give us the names of the members of the board?

Doctor WILEY. I know the names of the board. Doctor Remsen, of Johns Hopkins, is president; Professor Chittenden, of Yale, is a member; Professor Long, of the Northwestern University, of Chicago; Doctor Herter, member of the medical faculty of the Columbia University, of New York City; and Professor Taylor, of the University of California, at Berkeley, constitute the board.

Mr. MCLAUGHLIN. In case you seize goods and condemn them, there is an appeal to this board to determine the quality of the goods, and the correctness of your analysis, and something of that kind; is not that true?

Doctor WILEY. I, of course, know nothing about the work of the board excepting from hearsay, so I am not in a position to give the committee any information at all upon that subject.

Mr. LEVER. What I am trying to get at is how it happens that this referee board, appointed by the President of the United States, as I understand, should have its expenses charged against this account.

The CHAIRMAN. Perhaps I may make this statement in connection with this subject, as a matter of personal information, which I may say I have secured more from newspaper reports than anywhere else. My understanding is that that board was appointed by the Secretary of Agriculture at the instance, of course, of the President of the United States. The appointment was made by the Secretary of Agriculture under authority of the language in the appropriation bill empowering him to employ "assistants, clerks, and such other persons," as he may deem necessary to carry into effect the provisions of the act. The appointments were made, as I understand it, because of appeals which had come to the President from manufacturers who believed that the rulings of the Bureau of Chemistry as to what constituted adulterations in their products were unwarranted. The President, of course, did not know whether they were right or wrong. It was evident that the rulings of the bureau were not satisfactory, and the President believed that the appointment of a board made up of such eminent scientists as the ones whose names have been given by Doctor Wiley, and to which board these questions might be referred, was necessary in order to secure a determination of the matters that would be accepted by the whole country as conclusive and just. And my understanding, further, is that there has been referred to this board up to the present time the question of the harmfulness or otherwise or benzoate of soda, of sulphur used as a bleach, of saccharine, and sulphate of copper. I asked Doctor Wiley to give us some information about the board, because being in his bureau it naturally occurred to me that he ought to know something about it. I realize from what he has said that this board has a jurisdiction entirely outside of his and that he has not been giving it any personal attention; but I have no doubt that when the Secretary comes before us he can tell us in detail what has been done, and I presume we should delay the questions until he does come.

Mr. LEVER. I was about to suggest that that appropriation of $100,000 should be inquired into, as to the details of expenditure.

The CHAIRMAN. Yes; I think the committee feels that way about it. Each of these men, as we all know, is engaged in important work outside of his connection with this board, so that doubtless he can give only a part of his time to the work of the department; so I assume that they are paid a per diem for the time actually employed.

Mr. HAWLEY. How could they put in enough days——

The CHAIRMAN. As this is a rather large expense, amounting to $100,000, I am sure the committee will be interested in knowing the details of the expenditure.

Mr. RUCKER. The question arises whether this referee board which is appointed, as I understand it, for the purpose of giving confidence in the enforcement of the law governing the proper analysis of foods, if it does not reach the gentleman in charge, Doctor Wiley, I do not see how very much could be accomplished.

This appropriation was not intended by Congress to be used in any such manner. Every fact and circumstance in connection with the appropriation prove the contrary. Congress thought it was providing for the normal growth of the Bureau of Chemistry and its increased work, due to its duty in enforcing the pure food and drugs act.

Mr. Chairman, an executive officer is charged with the execution of the law according to the terms of the law, but in recent years the legislative and judicial branches of the Government have been almost absorbed by the executive branch, which endeavors to exercise all the functions which hitherto were exercised by the other coordinate and equal branches. And the creation of this referee board, the diverting of this $100,000 appropriation, is but another illustration of this growing and most unfortunate tendency.

The facts leading up to the creation of this board may be interesting. Until the passage of the pure-food act two years ago, conditions had been such that the consumer was entirely at the mercy of the dishonest manufacturer of food products. The use of preservatives and poisonous chemicals in foods sold to the public was well-nigh universal. Embalmed beef is a part of the history of our country. The demand for pure food came up from all parts of the country, and in response thereto the act of 1906 was passed and is now a law. That act provides the manner in which it shall be enforced and specifically names the channels through which it shall be operated and sets out in detail the means of redress which are available to the aggrieved manufacturer of food products. Section 4 of the act of June 30, 1906, provides that—

> Examinations of specimens of foods and products shall be made in the Bureau of Chemistry of the Department of Agriculture, or under the direction and supervision of such bureau, for the purpose of determining from such examinations whether such articles are adulterated or misbranded within the meaning of this act.

The law therefore, in terms mandatory, provides who shall enforce it—what bureau of the Government shall deal with it. There is no discretion—the law is specific. There is no evading its letter or spirit, and such evasion amounts to a violation of the law.

The Bureau of Chemistry of the Department of Agriculture is given the sole authority to deal with the enforcement of the act; to pass judgment as to the fact of adulteration or misbranding of articles of food or drugs. The law is plain; the intent of the law is equally as plain, and if there has been created by any authority anywhere in the Government any referee board, or any other board, which, in the exercise of the power conferred upon it in its creation, either hampers, supersedes, directs, or nullifies the action of the Bureau of Chemistry in the exercise of its authority under this act, such a board was created without authority of and is acting in violation of law. I quote again from the act, section 4:

> And if it shall appear from any such examination that any of such specimens is adulterated or misbranded within the meaning of this act, the Secretary of Agriculture shall cause notice thereof to be given to the party from whom such sample was obtained.

And here the act sets out in definite terms the remedy which the aggrieved manufacturer has under the law. I read still from section 4:

> Any party so notified shall be given an opportunity to be heard, under such rules and regulations as may be prescribed as aforesaid, and if it appears that any of the provisions of this act have been violated by such party, then the Secretary of Agriculture shall at once certify the facts to the proper United States district attorney, with a copy of the results of the analysis or the examination of such article, duly authenticated by the analyst or officer making such examination, under the oath of such officer. After judgment of the court, notice shall be given by publication in such manner as may be prescribed by the rules and regulations aforesaid.

And then section 5 provides that the district attorney to whom such report shall be made shall cause proper proceedings in the proper courts of the United States. I call attention to two things provided in section 4.

First. That the Bureau of Chemistry is charged with the collection of the facts as to misbranding or adulteration of food or drugs. No authority is given to any other officials of the Government. The direction of the law is to the Bureau of Chemistry; that bureau, and that bureau alone, is charged with certain duties named in the section. As to the collection of scientific facts, it is the only source of authority contemplated by the act to which the courts may look. There is nowhere mentioned in the act a referee board or a board of pure food and drug inspection. There is nowhere in the act conferred the power to any person to create such a board or boards; the direction is to the Bureau of Chemistry. That is one fact that can not be escaped.

Second. The other fact is there is no court of appeals from the facts laid down by the Bureau of Chemistry in any given case except a proper court of the United States. The act sets out in plainest possible terms the course of procedure in appeals, and the appeal goes to a court of law rather than a specially created court of chemistry, as we now have, under the operation of the so-called "referee board of consulting chemists."

A recital of the history of the passage of the pure food and drugs act will illuminate the attitude and intention of Congress with respect to any commission or board with functions such as are exercised by the referee board.

When the bill left the House it carried a provision for a commission identical in character with the referee board. The Senate struck out this provision and the House conferees agreed to the Senate amendment. The bill as thus reported to the two Houses by their respective conferees became a law and is now the law and the only law upon the subject. There can be no ambiguity as to the intention of Congress in this respect. The referee-board idea was deliberately omitted from the act, and the present board exists to-day in the very teeth of the intention of Congress and in open and flagrant violation of it.

Senator HEYBURN, on the 25th of January of this year, speaking in the Senate on this very matter, says—

> Mr. President, a word may not be out of place in connection with this matter, because I think the minds of Senators will be directed to it in the near future. We absolutely refused, in enacting the pure-food law, to consider favorably the proposition of establishing standards by legis-

lation. The difference between the bill that came back to us and the bill that we sent out of this body rested largely on that question, and I am quite jealous that what we declined to do directly we shall not be found to be doing indirectly. It was the spirit of the pure-food bill that the courts should determine these questions and that no other definition than that of the courts should constitute a rule of action under the law; and yet I find every day, almost, some statement in the papers that some board or some committee has issued its edict as to what shall and what shall not be permissible under the pure-food law.

If we sit idly by and allow the practice to drift in this direction, we might as well have accepted that proposition. It was the presence of that principle in the pure-food bill that as much as anything else held it back in Congress for almost a quarter of a century. People would not submit to the proposition that we should establish standards by legislation. The people who intelligently considered that measure demanded that each case should stand upon its own facts, and when the Senate expressed its final conclusion the law was so written. I want to know by what authority this board comes into existence, and I want to know what authority it claims for its conclusions.

I see that the paper says that it will probably result in displacing one of the executive officers of the Government, and that the board will be substituted for an executive officer authorized by law for whom we have been making provision year after year. If that is to be, I think we should take it into consideration when we are asked to open the Treasury of the United States and give them an extra hundred thousand dollars upon a very indefinite statement of the purpose for which it is to be used. We have already given them something over $700,000 in the appropriation for this year, and I may be wrong in thinking that the additional expense has been caused by this unauthorized board, and if it is so, I think the Senate would be interested in knowing it.

Senator HEYBURN was the leader in the Senate of the advocates of the present pure-food act, and his judgment as to its intent must be given great weight. Here is a man as much responsible for the pure food and drugs act of 1906 as any other man in the country, with the exception of Dr. Harvey W. Wiley, Chief of the Bureau of Chemistry, and he tells us in plain English that such a referee board of consulting chemists was not only not in the minds of Members of Congress when the act was passed, but that such a board was specifically and pointedly excluded from the act, and gives the reasons for its exclusion. This should settle the legal phase of the question as to whether or not there was any intention in the minds of the legislators to lodge a power in some one for the creation of a board which should have authority greater or even equal to that of the Chief of the Bureau of Chemistry, who is charged with the statutory duty of furnishing the data upon which the Secretary of Agriculture is to act and upon which federal courts are to act with respect to misbranding or adulteration in foods and drugs.

I have shown, Mr. Chairman, that the committee which appropriated the funds out of which the expenses of this referee board are being borne was not advised of its contemplated creation. Doctor Wiley, the chief of the bureau from which this sum was taken, it appears, knew nothing about it. It was pointedly stricken from the bill, preventing the manufacture, sale, or transportation of adulterated or misbranded or poisonous or deleterious foods, drugs, and so forth, before the bill could become a law.

I am not a lawyer, but I am enough of a lawyer to know that every judicial and just interpretation of a statute must follow the lines of common sense and be guided largely by the facts and circumstances, the history, the reasons and intentions, and the purposes of the legislative body enacting it. And if this rule is followed in this case, the conclusion is inevitable that the so-called "board of pure food and drug inspection," within the Bureau of Chemistry, and the referee board of consulting chemists, outside of the bureau, both exercising functions inconsistent with the statutory duty imposed upon the chief of that bureau, have been foisted upon the public without the authority of law and in plain violation of it.

Upon what authority of law is this referee board of consulting chemists predicated? I understand that the Secretary of Agriculture who appointed the board at the direction of the President of the United States relies for his authority upon this language (page 11) of the appropriation act of last year:

> Employing such assistants, clerks, and other persons as the Secretary of Agriculture may consider necessary for the purposes named.

That is for carrying into effect the pure food and drugs act, and he further relies upon section 161 of the Revised Statutes of the United States, which authorizes the head of a department to prescribe regulations for the government of his department. The statute reads:

> The head of each department is authorized to prescribe regulations, not inconsistent with law, for the government of his department, the conduct of its officers and clerks, the distribution and performance of its business, and the custody, use, and preservation of the records, papers, and property appertaining to it.

As to the first authority relied upon—"for the employment of assistants, clerks, and other persons"—it seems to me, as a layman, that his position is absolutely untenable and does not give him the authority claimed. Lawyers who are listening to me are no doubt familiar with Lord Tenterden's rule of construction, and I place it against the alleged authority for the appointment of this referee board. I read the rule:

> Where general words follow particular ones, the rule is to construe the former as applicable to persons or things ejusdem generis. This rule, which is sometimes called "Lord Tenterden's rule," has been stated as to the word "other" thus: Where the statute or other document enumerates several classes of persons or things, and immediately following and classed with such enumeration the clause embraces "other" persons or things, the word "other" will generally be read as "other such like," so that persons or things therein comprised may be read as ejusdem generis with, and not of a quality superior to or different from, those specifically enumerated.

It is my information that this rule is almost universally followed by the courts in the interpretation of statutes, and that the words "other persons" can not be of a quality superior to or different from those specifically enumerated, so that these words in the appropriation act would convey the power of appointment of persons with an authority of like character with "assistants and clerks," and not of a character equal to and even superior to the chief of the bureau, and I think no one will deny the correctness of this position. Almost every bureau in this great department contains provisions for the employment of assistants, clerks, and "other persons," and yet I am sure no one will claim that the term "other persons" gives to the Secretary of Agriculture the authority to appoint persons whose duties and functions are superior to the chief of the bureau. Such an idea is absurd on its face and contrary to every principle of common sense.

These words were not intended to convey any such authority. It was not in the mind of Congress that such meaning should be given them, and I wish to call the attention of the committee to the language of the Supreme Court in the case of Holy Trinity Church *v.* The United States, as follows:

> It is a familiar rule that a thing may be within the letter of the statute and yet not within the statute, because not within its spirit nor within the intention of its makers.

And in the case of the United States *v.* Palmer (3 Wheat., 601, 631) the court applied the doctrine in this way, and it is an opinion of Chief Justice Marshall:

> The words of the section are in terms of unlimited extent. The words "any person or persons" are broad enough to comprehend every human being. But general words must not only be limited to cases within the jurisdiction of the State, but also to those objects to which the legislature intended to apply them.

Does anyone contend that Congress intended the words "other persons" to convey to the Secretary of Agriculture such authority as he has exercised in the creation of this Bureau of Consulting Chemists? The Secretary of Agriculture is not a lawyer, but he is too good a farmer, with too much common sense, to believe himself, in my judgment, that he had such authority, and I am of the opinion that only the positive direction of the President of the United States could have committed him to an act in plain violation of the law.

The question is, Shall Congress stand for any such action upon the part of the executive branch of the Government and shall we permit the emasculation of the pure-food law through the devious workings and windings of commissions and boards which have been appointed in the face of the law?

But why the creation of this board? Why the creation of a board of pure food and drug inspection? When the Chief of the Bureau of Chemistry undertook the enforcement of this act he was evidently guided by the reasons which induced this legislation, viz, the protection of the lives and health of the American citizens against poisonous preservatives and the protection of the American consumer of food products against evils and frauds in the way of misbranding. He must have had in mind the same idea that Congress had, that no chances must be taken with the lives and health of the people in permitting the use of preservatives in foods and drugs. Experts disagree, and for that reason their findings are sometimes regarded by the layman as worthless, but when their disagreement may involve the life or health of a citizen, he is wisest who decides the question in favor of life and health. It was this spirit, the spirit of taking no risk which might jeopardize life and health, that guided the course of that distinguished scientist upon whom the law, by direction, has placed the burden of protecting the consuming public against fraud, against poisonous substances, against rotten food, against insanitary methods of manufacture. He conducted his experiment with great caution and care. His conclusions were irresistible.

He put out of business salicylic acid; he drove formaldehyde out of use as a preservative and tabooed other poisonous substances; and the great scientists of the world, the Imperial Board of Germany, the chemists of all creation, in almost unanimous voice, said that he was right. The honest manufacturer

said he was right, and wished him godspeed in his great work; the press of the country said he was right, and backed him with its great power; the innocent consumers of the country, in every home and hamlet, in mighty accord acclaimed him a benefactor. It was the dishonest manufacturers—those who sent thousands of brave soldiers in Cuba to their deaths with embalmed beef, those who have sold you catsups made from the peelings of rotten tomatoes, those who have jeopardized the lives of children and invalids by selling to them preserved, rotten milk—these are they who have stood in the way of the enforcement of the act, and these are they who whined out when the manacles of the law began to tighten around them. It was in answer to the call of these kinds of adulterators of foods, the malefactor, and the lawless manufacturer that resulted in the creation of that scientific board which we have been appropriating for in the Bureau of Chemistry, known as the "Board of Pure Food and Drugs Inspection."

I understand it to be the duty of this board, and the Chief of the Bureau of Chemistry is its chairman, to collect the facts as to the misbranding of an article of food, or as to the use of preservatives which are either harmful or deleterious to health. And it may seem strange, and it is strange, that one of these eminent scientists, one of these men who are to determine whether copper sulphate is poisonous or not, whether the use of salicylic acid is dangerous, whether the use of benzoate of soda is harmful, whether any of these chemicals used for preservative purposes are likely to produce ill effects—I say one of these experts, one of these scientists—comprehensively familiar with these preservatives and drugs, happens to be a lawyer, who has been in the Department of Agriculture a few years and is now its solicitor; that is, the general-law man of the Department of Agriculture. It may be that he knows the law, and I presume he does, but if any one should tell me that this young lawyer knows anything about chemistry, knows anything about the chemistry of food, I confess that I shall have to be shown the fact. When this board was created, one Doctor Dunlap was appointed associate chemist. Doctor Dunlap is responsible to no one—he is independent in the exercise of his functions. He is of the bureau and at the same time not of it. The Chief of the Bureau of Chemistry has no more to do with the direction of his work than you have, or I, and yet the chief of this bureau is held responsible for the findings or the facts. The majority of this board must agree to the facts certified to the Secretary.

I am not here to say that this board is harmonious or otherwise, but I am here to say that its creation was extra-legal, and I fear that it has resulted in seriously hampering the enforcement of the pure food and drug act. This board was created, as I have said, at the behest of the manufacturers. The consuming public cared nothing about the creation of this board; it was satisfied with the manner of the enforcement of the law as was given to it by the Chief of the Bureau of Chemistry. For a while the manufacturers were satisfied with this arrangement, and things rocked along, as far as the public could see, without a jar, and then came the decision of this board that benzoate of soda was a preservative dangerous to health and life. The facts were certified to the Secretary of Agriculture, who published them as provided by law, and then the manufacturers who were using these preservatives swooped down upon Washington, carrying their assault even to the White House. They laid their case before the President, urging that benzoate of soda was not harmful and that certain goods could not be put upon the market without the use of it as a preservative. It was a hard problem. The President did not wish that any great manufacturing establishment should have its doors closed; and when it was alleged that such would be the case if benzoate of soda should be tabooed, he called to his aid his trusted assistants of the Department of Agriculture. I can imagine what happened. In that impulsive way, characteristic of him, he said to the imploring delegation of manufacturers, "I will give you a square deal; I will send for the Board of Pure Food and Drug Inspection and the Secretary of Agriculture." I imagine that this board and the Secretary hastened to the White House, and when they walked into the consulting room I can imagine what took place.

I can imagine, Mr. Chairman, that great stress may have been brought to bear upon the President to get him to appoint a referee board. I can well see, also, that in the utmost good faith and believing that its decision would strengthen the law, the President could have been induced to do so. I may picture what possibly might have occurred in his office. Perhaps the same parties who appeared before Federal Judge Anderson, in Indianapolis, to enjoin the state food officials from doing their duty—for instance, Curtice Brothers, of Rochester, and Williams Brothers, of Detroit, affirm that they could not make a catsup without benzoate of soda, when they knew that some of the largest manufacturers of the country were doing so—may have solicited the protection of the President in carrying on their low-grade business. I can imagine they may have even asked the Secretary of Agriculture to confer with him on this matter and to advise him whether or not these substances are injurious to health, and the Secretary of Agriculture doubtless answered in the affirmative. I can imagine then the President turning to these gentlemen and informing them that if these are injurious substances they should not be allowed to be put into foods. At any rate, however, they seem to have had their way, and it was ordered that $100,000 of the money which had been appropriated to carry out the provisions of this act should be used to pay the experts appointed at the instigation of these manufacturers, who had the instinctive keenness of business to prefer their bills to be paid by the United States rather than by themselves. It was in this way that they deceived the President and secured the services of a very expensive board without spending one cent.

I can imagine that the upshot of this conference was that when the President was informed by Doctor Wiley, Doctor Dunlap, Secretary Wilson, and our young chemico-legal friend, Mr. McCabe, that benzoate of soda was a poisonous substance, deleterious to health and dangerous to the lives of the people who ate food in which it had been used, that he rose upon his tiptoes and bringing his clenched fist down upon the table said, "If this is your verdict, gentlemen, benzoate of soda can not be used in the foods of this country." I do not know that this is a true picture. I can very well imagine how such a scene could happen. Doctor Wiley and his little crew went away happy and content. Time rolled on and then, like the bursting of a volcano, came the announcement that the President had determined to appoint and had appointed, as a court of final jurisdiction, a so-called "Referee Board of Consulting Chemists," which should pass finally and forever upon matters in dispute affecting the use of preservatives in foods. Victory number two was chalked up to the manufacturer. The consuming public was none the wiser.

This illegally appointed board began its investigation February 24, 1908. Exactly what they did is not known, because their report has not been published. Enough has come to the public eye to inform us that they have held benzoate of soda not to be injurious in the sense in which Doctor Wiley held it to be. Following the plan laid down by Doctor Wiley in his investigation, they conducted "poison squads" for a period of two months and found that, administered in small quantities, benzoate of soda failed to show any deleterious effect upon healthy young men; but they did find "in some directions there was slight modification in certain physiological processes, the exact significance of which modification is not known." Larger doses of this chemical were given for only one month, and hence the conclusion that this expensive, extra-legal referee board has thrown no light upon the subject of benzoate of soda, and the only result so far from it has been the muddying of the water, the adding of confusion to confusion, and the practical suspension of the operations of the pure-food law as to benzoate of soda. The board has accomplished nothing in the way of good. Its operations have worked harm, and it is but another illustration of a fact which, happily, is dawning upon the country—that the thing most needed at this hour is an Executive whose judgment is guided by the law rather than by his individual impulses.

I do not know whether benzoate of soda is a dangerous or poisonous preservative. I am no more of a chemist than is George W. McCabe, a member of the Board of Pure Food and Drugs Inspection, but I do know that the man whose statutory duty it is to pass upon this matter says that it is dangerous; and although great general chemists differ with him, while all food chemists agree with him, I am willing to take his judgment, for I regard him as the most competent man in all the world to speak upon the subject. And besides that, I wish to guard myself and the public against any risks of endangering life and health; and the very spirit of the pure food and drugs act, if it means anything, it means that the public shall be guarded against risks.

The law of probabilities should have some weight in this connection. If Doctor Wiley has heretofore been right in his decisions touching these preservatives, it is not a great assumption to attach the greatest possible consideration to his decision

with respect to benzoate of soda. What are the facts? I read from food-inspection decision 76, page 5:

In order to obtain the views of eminent physiologists and hygienists, health officers, and physicians in the United States as to the propriety of using preservatives in foods, a list of questions was sent out from the Department of Agriculture, to which a large number of replies was received. These questions and the replies have been tabulated as follows:

1. Are preservatives, other than the usual condimental preservatives, namely, sugar, salt, alcohol, vinegar, spices, and wood smoke, injurious to health?

Affirmative	218
Negative	33
Total	251

2. Does the introduction of any of the preservatives which you deem injurious to health render the foods injurious to health?

Affirmative	222
Negative	29
Total	251

3. If a substance added to food is injurious to health, does it become so when a certain quantity is present only, or is it so in any quantity whatever?

Affirmative	169
Negative	79
Total	248

4. If a substance is injurious to health, is there any special limit to the quantity which may be used which may be fixed by regulation or by law?

Affirmative	68
Negative	183
Total	251

5. If foods can be perfectly preserved without the addition of chemical preservatives, is their addition ever advisable?

Affirmative	12
Negative	247
Total	259

It can readily be seen from this tabulation that the opinions expressed point overwhelmingly to the fact that preservatives as a class are injurious to health, and hence their use is, under the act, inhibited.

Again, Mr. Chairman, Doctor Wiley's investigation showing the effect of sulphurous acid and sulphites upon digestion and health was confirmed by the German imperial board of health; his investigations with respect to salicylic acid and salicylates were confirmed by an almost unanimous opinion of health officers and physicians throughout the country; the results of his borax experiments confirmed by the German imperial board of health; his formaldehyde investigations confirmed by everyone who has ever studied the subject; and it remains for this surreptitiously created referee board of consulting chemists to deny the results of his investigations with respect to benzoic acid and benzoates. But even in this one instance, where this new board dissents, it is not supported by the food and dairy experts of the country, who agree with the findings of Doctor Wiley.

Knowing that the members of the executive committee of the National Association of State Dairy and Food Commissioners were men who had given their lives to the study of the effects of preservatives upon health, I addressed a number of them the following telegram:

Does your association oppose the use of all chemical preservatives in foods? Are you personally and officially opposed to the use of chemical preservatives in foods? Will the legalization of an unrestricted use of benzoate of soda result in harm to infants and invalids? Would you favor letting the question go to the courts instead of being officially decided by the Referee Board of Consulting Chemists?

To this telegram the following responses have come:

I answer yes to all questions in your message. Letter will follow at once.

W. M. ALLEN,
Food Chemist of North Carolina.

Law of Indiana prohibits antiseptics in foods. I am opposed to chemical preservatives and drugs in foods. Legislation of benzoate will open way to unrestricted use. Infants and invalids will undoubtedly be harmed. Question can not be settled by referee board. Decision only complicates mooted questions. Sanitary aspect of use of benzoate is most important and must be fully considered.

H. E. BARNARD,
State Food and Drug Commissioner of Indiana.

Commissioner Bird out of the city. Will return early next week.

N. J. SMITH,
Chief Clerk Dairy and Food Department, Michigan.

Our association does not approve the use in food products of any chemical preservative which has not been proven beyond reasonable doubt by scientific investigation to be harmless to health, or if its use conceals in any way inferiority of product. Have not received full report from referee board, but understand this board restricts its decision to physiological effects on healthy individuals under observation for two months only. Other observations for longer period are to the contrary. This leaves effect of benzoate of soda on healthy individuals doubtful, without consideration of effect on infants and invalids, and does not take into consideration insanitary conditions and inferior products made profitable by its use. Personally, would favor test case in the courts which would bring out all sides of question. In the meantime, the Government should investigate all phases of the question. Our association has had the matter up with the President since referee board's report, and feel confident of this effort in the consumer's interest.

M. A. SCOVEL,
Executor Kentucky Food and Drug Act.

Our association is unalterably opposed to use of all chemical preservatives. Am officially and personally opposed. Harm to infants and invalids. Covers up fraud. Court should interpret law.

E. F. LADD,
Commissioner, North Dakota.

Answering your telegram, the Association of State and National Food and Dairy Departments, of which I am president, at its last meeting unanimously passed a resolution opposing all chemical preservatives in foods as harmful and unnecessary. Officially and personally I am opposed to the use of all chemical preservatives in foods. Am convinced that the unrestricted use of benzoate of soda would result in great harm, especially to infants and invalids. Would prefer to have all questions go to the court rather than to have them passed upon by referee board. Letter follows.

J. Q. EMERY, *Madison, Wis.*

These telegrams prove two things—that the food experts agree with Doctor Wiley in his conclusions with respect to the harmfulness of benzoate of soda, and also bring out the fact that somebody blundered in the appointment of the referee board of consulting chemists.

I shall now read a few most interesting letters received in the last few days from various dairy and food commissioners. These letters agree unanimously that the use of benzoate of soda should be prohibited, not only because of its deleterious effect on health, but because—and this is a matter to which I wish to direct especial attention—its use permits the introduction of unscrupulous methods in the manufacture of food and dairy products and the use of inferior and partly decomposed materials.

INDIANA STATE BOARD OF HEALTH,
DEPARTMENT OF FOOD AND DRUGS,
Indianapolis, Ind., January 30, 1909.

A. F. LEVER, M. C.,
Washington, D. C.

MY DEAR SIR: Replying to yours of the 30th instant, I would say that the Association of State Food Commissioners, of which I am a member, is emphatically opposed to the use of all chemical preservatives save salt, sugar, vinegar, spices, wood smoke, edible oils, fats, and alcohol. These preparations above enumerated are classed as standard preservatives, and all save vinegar, salt, spices, and wood smoke have valuable food properties. The association is opposed to the use of all chemical preservatives, and all preservatives if poisonous or injurious to health under conditions in which they are used in food products. Among such preservatives we class fluorids, beta-naphthol, formaldehyde, salts of copper, salicylic acid and its salts, boric acid and its salts, sulphurous acid and its salts, benzoic acid and its salts.

As a member of the joint committee on standards of the Association of Official Agricultural Chemists and of the Association of State and National Food and Dairy Departments, I take the same ground. I do not believe that chemical preservatives or drugs have any place in food products.

They have no quality which entitles them to any place as a food product. In passing through the digestive track it affords neither heat nor energy; it does not restore waste tissue; it does not build up any new tissue; it does not have any value in increasing or diminishing the saline contents of the blood; and thus can not take any part in osmosis, the great controlling physical factor in life. All of this is especially true of benzoate of soda, which is regarded generally by chemists and physicians as a drug and as such is frequently administered as a medicine. In addition to the question of the injurious or deleterious effects upon the health by benzoate of soda, I believe it should not be allowed in food products, because its use encourages and makes possible the use of poor and unfit raw material, waste products unfit for food, the maintenance of insanitary premises, and carelessness in the handling and manufacture of food products. By depending upon benzoate of soda as a preservative, the manufacturer can dispense with such essentials as rapid handling, cleanly utensils, and proper sterilization. I believe if benzoate of soda is classed as a noninjurious preservative by the Department of Agriculture that it will be very difficult to prevent its use in the several States. Under such conditions, I see no reason why the milkman may not employ it in the milk he sells to be consumed by infants, invalids, and aged people in every walk and condition of life.

The impropriety of allowing a drug, even though that drug may be shown to be noninjurious in minimum quantities under certain rigid conditions of health and strength, can not be questioned. It will be impossible to control its use. Milkmen may employ it in their milk, the butcher in his meats, the packer in his preserves, the canner in his catsup, and the brewer in his beer, and it is certain that under a wide-open policy it will be possible for the consumer to take daily without his knowledge far more than the maximum dose of this preservative.

The sanitary aspect of the use of benzoate of soda is most important and must be fully considered, and for that reason I do not think the consumer should be compelled to accept a decision by any board of referees which considers only one side of the question. The argument of the manufacturers that they should be allowed to use the preservative is without weight. There is not a single article of food which has been preserved by means of benzoate of soda which can not be preserved and offered to the consumer in perfect condition without the aid of any chemical preservative. This fact has been completely dem-

onstrated in the case of jellies, jams, catsup, preserves, pickles, cider, fruit juices, mince-meat, and other articles of the same character.

Yours, truly,

H. E. BARNARD,
State Food and Drug Commissioner.

STATE OF WISCONSIN,
OFFICE OF DAIRY AND FOOD COMMISSION,
Madison, Wis., February 1, 1909.

Hon. A. F. LEVER,
House of Representatives, Washington, D. C.

DEAR SIR: Late in the afternoon of Saturday, January 30, I received the following telegram:

WASHINGTON, D. C., *January 30, 1909.*

J. Q. EMERY,
Food Commissioner, Madison, Wis.

Does your association oppose the use of all chemical preservatives in foods? Are you officially and personally opposed to the use of all chemical preservatives in foods? Will the legalization of an unrestricted use of benzoate of soda result in harm to infants and invalids? Would you favor letting all questions go to the courts instead of being officially decided by the referee board of consulting chemists? Wire answer and write full particulars at once.

A. F. LEVER, M. C.

I immediately telegraphed you as follows:

MADISON, WIS., *January 30, 1909.*

A. F. LEVER, M. C.,
Washington, D. C.

Answering your telegram, the Association of State and National Food and Dairy Departments, of which I am president, at its last meeting unanimously passed a resolution opposing all chemical preservatives in foods as harmful and unnecessary. Officially and personally, I am opposed to the use of all chemical preservatives in foods. Am convinced that the unrestricted use of benzoate of soda would result in great harm, especially to infants and invalids. Would prefer to have all questions go to the courts rather than to have them passed upon by referee board. Letter follows.

J. Q. EMERY.

The wires being down on account of the storm, your telegram came by wire to Janesville, Wis., and from there by mail, and it was necessary that my telegram go by mail to Chicago and from there by wire.

The resolution unanimously passed by the Association of State and National Food and Dairy Departments at its twelfth annual convention, held at the island of Mackinac, August 4 to 7, 1908, and to which I referred in my telegram, is as follows:

"*Resolved*, That this association is convinced that all chemical preservatives are harmful in foods and that all kinds of food products are and may be prepared and distributed without them, and pledges its best efforts to use all moral and legal means at its disposal to exclude chemical preservatives from food products, and to this end we ask the cordial support of all national, state, and municipal authorities charged with the enforcement of food and drug laws. And in this connection we desire to express our gratitude for the helpful services of the medical profession generally, and especially to the American Medical Association."

According to the newspaper account, the referee board of scientific consulting chemists failed to find any deleterious effect upon healthy young men of small doses of benzoate of soda given for a short period of time, although they did report: "In some directions there were slight modifications in certain physiological processes, the exact significance of which modifications is not known," when larger doses of this chemical were given for only one month. To conclude from this that benzoate of soda would be a proper ingredient of foods would be extremely dangerous, since its effect upon infants and invalids has not been demonstrated nor even the effect upon healthy adults of oft-repeated doses extending over a longer period of time. The quantity of added benzoate of soda obtained by chemists from a single glass of sweet cider has frequently been found to be greatly in excess of what the referee board calls small doses for adults.

Moreover, this and other chemical preservatives have been found to be entirely unnecessary in the manufacture and preservation of foods when clean, sound raw materials are suitably prepared in clean, sanitary factories. Chemical preservatives make possible and are often used for the purpose of employing partly spoiled raw materials and manufacturing them under insanitary conditions.

If the report of the referee board is to be understood as holding that benzoate of soda when added to food is harmless, and this holding is accepted by the national authorities, and its unrestricted use is to follow in foods such as meats, milk, catsups, preserves, and a host of others, the conclusion is inevitable that we are by one stroke set back to the condition of things as they existed before the enactment of food laws. Such action on the part of the national authorities would prove very obstructive to state dairy and food commissioners in the enforcement of state dairy and food laws. Injunctions have already been applied for in the United States courts of some States, praying that dairy and food commissioners, pending the report of that referee board, be restrained from bringing prosecutions in state courts to determine the legal status of foods containing benzoate of soda.

In my conversation with physicians with reference to the reported conclusions of the referee board, I find them to emphatically disapprove those conclusions. They tell me that while they would under certain conditions administer to certain patients benzoate of soda in the quantities indicated by the board for a month, they would not risk the continued administration of that chemical week after week, month after month, and year after year for a lifetime. But if benzoate of soda and other chemicals, such as sulphurous acid, saccharin, copper salts, formaldehyde, salicylic acid, etc., are to be held as harmless by the referee board, and in consequence allowed by the National Government unrestricted use in foods, the conclusion seems forced upon us that we might as well remove food laws from our statute books and save the expense of maintaining food officials. However, I believe such conclusions are contrary to public opinion, to the medical judgment of this country, and are opposed by the intelligent and disinterested public press.

As illustrating how insufficient the data of the month or two months' experiments of the so-called "referee board" on healthy young men to reach the general conclusion that benzoate of soda when added to foods is harmless under all conditions, I may say that I am informed that a few years ago Doctor Babcock, of the University of Wisconsin, inventor of the Babcock test for the determination of the butter fat content of milk, a chemist, experimenter of preeminent ability and world-wide reputation, undertook a series of experiments to determine whether or not the feeding of salt to cattle is necessary. For a certain period of time he fed to one lot of cattle the usual amount of salt, and to another lot he withheld the salt. For a time he was unable to discover any difference and had about reached the conclusion that the feeding of salt to cattle was unnecessary; but he concluded to continue the experiment for another period, and after continuing the experiment for a few weeks longer, the cattle from which the feeding of salt was withheld began to go to pieces and actually did go to pieces, whereas the cattle to which the salt was fed continued strong and healthy. Had he generalized from the short period of feeding the cattle without salt that salt was unnecessary, his conclusion would have been entirely erroneous, as the continuation of the experiment fully determined.

Very truly, yours,

J. Q. EMERY,
Dairy and Food Commissioner.

NORTH CAROLINA DEPARTMENT OF AGRICULTURE,
Raleigh, January 30, 1909.

Hon. A. F. LEVER, M. C.,
Washington, D. C.

DEAR SIR: Replying to your message regarding the use of benzoate of soda in food, I will say that the Association of State and National Food and Dairy Departments does oppose the use of all chemical preservatives in food products, and I, officially and personally, oppose the use of them. I believe that the legalization of an unrestricted use of benzoate of soda in food will result in harm to invalids and infants, as well as many others who have weak digestive or other organs. The unrestricted use of benzoates will, in my mind, not only be deleterious to the health of many people, but it will make possible and pave the way for a great deal of fraud. With the use of preservatives it would be possible for unscrupulous manufacturers to use in the manufacture of food a great deal of material that is unfit for such use and could not otherwise be used for the purpose. It will permit of the use of insanitary and filthy methods of manufacture, which otherwise will not be possible.

Then there is no real need for the use of preservatives, for all foods are put up and kept in good condition without the use of them. The latter fact may be proved without a doubt.

As to the question of the use of preservatives being settled by a board or by the courts, I hardly know what to say. It seems that by a board would be the logical settlement of such a question. However, it seems to me that it is a proposition that will take long and tedious investigation to reach absolutely correct results. The effect of preservatives in food on the human system is necessarily slow, and, in my opinion, the evil effect might not show itself in months and even in years. I believe the unrestricted use of preservatives is dangerous and being unnecessary, should be prohibited.

Yours, truly,

W. M. ALLEN,
Food Chemist.

KENTUCKY AGRICULTURAL EXPERIMENT STATION,
DIVISION OF STATE FOOD INSPECTION,
Lexington, Ky., February 1, 1909.

Hon. A. F. LEVER,
House of Representatives, Washington, D. C.

DEAR SIR: I received a telegram from you Saturday, which read as follows:

"Does your association oppose the use of all chemical preservatives in foods? Are you officially and personally opposed to the use of all chemical preservatives in foods? Will the legislation of an unrestricted use of benzoate of soda result in harm to infants and invalids? Would you favor letting all questions go to the courts instead of being officially decided by the referee board of consulting chemists? Wire answer and write full particulars at once."

This I answered in the following words, which I now confirm:

"Our association does not approve the use in food products of any chemical preservative which has not been proven beyond reasonable doubt by scientific investigation to be harmless to health, or if its use conceals in any way inferiority of product. Have not received full report from referee board, but understand this board restricts its decision to physiological effects on healthy individuals under observations for two months only. Other observations for longer period are to the contrary. This leaves effect of benzoate of soda on healthy individuals doubtful, without consideration of effect on infants and invalids, and does not take into consideration insanitary conditions and inferior products made possible by its use.

"Personally would favor test case in the courts, which would bring out all sides of question. In the meantime the Government should investigate all phases of the question. Our association has had the matter up with the President since referee board's report, and feel confident of his efforts in the consumer's interest."

As stated in the telegram, I have not received the report of the referee board as to its conclusions on benzoate of soda. I have seen nothing except reports from the papers. If these reports are correct, the referee board comes to the conclusion, after separate experiments on healthy individuals for a period lasting not over two months, that the physiological effect of benzoate of soda in small quantities—or even in larger quantities—was not injurious to the health of the young men who were under observation.

I assume that these men were strong and active and in robust health. I have no doubt of the scientific accuracy of the experiments. Still, I do not desire to commit myself as to the findings of the board until I have had an opportunity to study the complete data.

The findings of the referee board as to benzoate of soda do not in my estimation justify the conclusion that the use of benzoate of soda in food products should be allowed under the national or state food laws. There are other carefully conducted scientific experiments made on individuals for a longer time than those reported by the referee board which give data justifying conclusions contrary to those of the board. These experiments are similar to those made by the board in one respect at least, and that is young, strong, healthy individuals were under observation. But even if the results of experiments made under like conditions to those of the referee board show no ill effects on the subjects, there are other things which should be considered before the use of benzoate of soda should be allowed in food products.

When Doctor Wiley first began experiments with preservatives on his squad of young men, the criticism was made that the results might or might not be of value—of value if the results showed ill effects; of little value if the results on the strong young men under observation showed that they were not affected by the use of the preservative. For it was justly pointed out that any strong, healthy man could eat most anything under any circumstances without apparent injury to health, whereas the results might be to the contrary if fed to those of enfeebled constitution or digestive power, or to the young, and especially to infants. And this criticism can be justly applied to the conclusions of the referee board if its conclusions go so far as to indicate that benzoate of soda in food products under all circumstances would not be injurious to the health of the human race taken collectively.

There is another objection to the use of any antiseptic in food products which I feel has not received the careful consideration by experts that it should. By its use, inferior, partly decomposed products may be made up into food products. Furthermore, there is not the necessity for sanitary conditions in the food-product plants where antiseptics or preservatives are used as there would be were they not allowed. With those who have had charge of food laws this point has been brought out very clearly, but others possibly do not realize the extent of insanitary conditions existing in many of our plants making food products.

It is claimed that it is impossible to put up some food products without antiseptics. This claim does not hold true to-day, although several years ago most manufacturers claimed that it was impossible to make some products without adding preservatives. But now many manufacturers, after thorough trials, have found out that preservatives are not essential and that better products can be made without the use of antiseptic preservative than with it.

As an example, a few days ago we received a letter from the Loudon Packing Company, of Terre Haute, Ind., asking whether this State is going to allow the use of benzoate of soda, in accordance with the decision of the referee board; that according to our ruling heretofore they had made their last year's pack without preservatives. We answered them as follows:

"I have not received full report of the referee board, but I am informed that it reported that its experiments conducted separately on some young, healthy men for two months with benzoate of soda did not show any detrimental physiological results. The question, therefore, will come up to the Secretary whether, first, he will allow the use of benzoate of soda, because these experiments conducted under presumably scientific accuracy on healthy individuals for two months is sufficient evidence for him to make the statement that benzoate of soda is harmless in food products, especially so, as this is in direct variance with the results conducted by the Department of Agriculture over a longer period and presumably with the same scientific accuracy. It is possible, of course, and not altogether improbable, that the results will not show in two months what they would show in nine months. Furthermore, the Secretary will have to consider, even if it would not be injurious to healthy persons, whether benzoate of soda might not be injurious taken in food products by invalids and infants and those who are not physically strong.

"And still again it is a question whether benzoate of soda should be used, even if it is considered by the Secretary not harmful in itself but might make the products in which it is used questionable as to health on account of being able to use unsound products in the manufacture of different food products by the use of preservatives. Thus, rot in tomatoes in making catsup, etc. There is no question in my mind but that if the Secretary allows the use of benzoate of soda he will be compelled to have the same labeled plainly.

"I am not ready to decide yet. I desire to see the full report of the referee board and all the data, their methods, and experiments; and I desire not only their own conclusions, but from their data, methods, etc., to reach conclusions myself before I can conscientiously allow the use of benzoate of soda."

To this letter I received the following reply this morning, dated January the 30th:

"I have your favor of the 28th and am very glad to notice a decided tendency on your part to question the conclusion arrived at by the referee board. While I have felt that the use of a small amount of benzoate of soda in condimental goods could not be injurious on account of the small amount of such goods consumed, I have never gone so far as to claim that the use of preservative in unlimited amounts and in goods of all kinds could not result in injury, and this seems to be about the conclusion reached by the referee board, according to the abstract of the board's report, as sent me by Secretary Wilson.

"Aside from the question of injuriousness of the preservative, there is absolutely no question whatever but that the use of preservative makes possible the use of materials in foods in a condition that would prevent their use if preservatives were not used. We believe that every packer will admit this. As a matter of course, the use of preservative does not necessitate the use of low-grade or unsound materials, but it does make it possible to use such materials where they could not be used without preservative; and if preservative is to be permitted, we think that it should be under restrictions which will do away with the possibility of the use of inferior or unsound stock."

The press generally seems to interpret the decision of the referee board to be that the use of benzoate of soda is to be allowed in food products as it would have no injurious effect; but I believe from the data already at hand no such interpretation should be given to the results of the referee board. If the interpretation were such as to allow its use in some food products, as tomato catsup, fountain sirups, and condiments, there would be no good excuse why it should not be allowed in other food products; or if allowed to be used solely for the reason that no ill effects were shown by the experiments conducted by the referee board for a short period on healthy individuals, then other preservatives having a like effect under same conditions should be allowed; and if preservatives were allowed in one food product, the claim would be strong that they should be allowed in all food products.

And yet I believe it would be almost criminal to allow the use of any preservative in milk, as it is so universally used as food for invalids and infants, and the physiological effects of preservatives on milk, when fed under such conditions, are doubtful at least.

In conclusion, allow me to state that I believe that before the use of benzoate of soda in food products is allowed the Government should take all phases of the problem under consideration.

Yours, very truly,

M. A. SCOVELL, *Director.*

But, Mr. Chairman, the manufacturers, who inveigled the President into the appointment of this referee board, who seduced his judgment and committed him to a plain violation of law and to a policy which must ultimately mean the death of the spirit of pure-food legislation, contended that it was impossible for them to continue their manufacturing operations unless permitted the use of certain of these preservatives which had come under the ban of the Chief of the Bureau of Chemistry. Let me read the telegrams and letters from some of the honest, law-abiding manufacturers of canned goods, catsups, and the like to prove the falsity of this contention.

I sent this telegram to two concerns, and each promptly replied:

Would you wire me if you are opposed to the use of benzoate of soda in foods, and why? Wire answer and write fully.

A. F. LEVER.

The following replies were received:

We are opposed to the use of benzoate of soda or any other chemical preservative in food products, upon the ground that their use makes it possible to use inferior and unsound material in the manufacture of foods. Writing.

LOUDON PACKING COMPANY,
Terre Haute, Ind.

We oppose benzoate. Much expert opinion is recorded against it. Doubt existing. We prefer safe side. Furthermore it invites employment refuse and waste material, unfit for human consumption, which is principle object of its use.

H. J. HEINZ COMPANY,
Pittsburg, Pa.

I now read letters from each of these great packing concerns, which are respecting the law and are not using preservatives with which to palm off on the public rotten and unfit food in order to swell their profits:

H. J. HEINZ COMPANY,
Pittsburg, U. S. A., January 30, 1909.

Hon. A. F. LEVER, M. C.,
Washington, D. C.

DEAR SIR: We inclose herewith confirmation of our reply to your telegraphic inquiry of to-day; and in response to your request for a written reply at greater length, perhaps we could give you no better expression of our views and position upon this subject than was contained in an address by the writer before the Society of Chemical Industry at New York in October a printed copy of which we inclose.

We may say further, however, that we believe the real interest of the great prepared-food industry of the country as a whole will be best served by that course of procedure under the law which will most enhance the reputation of American food products. The legitimate preserving industry of the country will not be injured by the prohibition of chemical preservatives, but will rather be brought into disrepute by their toleration through distrust and lack of confidence thereby caused in the minds of the consuming public, both at home and abroad, concerning the materials and methods employed.

Yours, truly,

H. J. HEINZ COMPANY,
Per L. S. DOW.

THE LOUDON PACKING COMPANY,
Terre Haute, Ind., January 30, 1909.

Hon. A. F. LEVER, M. C.,
Washington, D. C.

DEAR SIR: We have your telegram asking us to wire you if we are opposed to the use of benzoate of soda in foods, and why; also to write you regarding the matter, and have wired you as follows: "We are opposed to the use of benzoate of soda, or any other chemical preservative, in food products, on the ground that their use makes it possible to use inferior and unsound materials in the manufacture of foods." Being without advice as to the object of your inquiry we can only guess at it, and presume that it is your intention to take up the preservative question in Congress. If so, we would state our position in the matter, as follows:

The report of the referee board would indicate that its members consider the use of benzoate of soda not injurious in any quantity. This report is based upon the results of experiments on so-called "health squads" or "poison squads," the experiments extending over a period of two months in the case of the small doses administered, and one month in the case of the larger dosage, and the conclusions reached being directly opposed to those reached by Doctor Wiley as the result of similar experiments carried on by him for a period of nine months. We question whether the conclusions reached by the referee board in the one or two months' experiments are entitled to anything like the consideration that should be accorded to the conclusions reached by Doctor Wiley after experimental work of the same kind extending over a period of nine months.

But aside entirely from the question of wholesomeness or unwholesomeness of benzoate of soda itself, we think attention should be given to the possibility of foods being unwholesome by reason of their being made from inferior materials, the use of such materials being made possible by the employment of benzoate of soda as a disinfectant or preservative. We presume that no one but a physician, devoting his attention to internal medication, or a physiological chemist is competent to pass on the question of wholesomeness or unwholesomeness of benzoate of soda, and we would not attempt to do so ourselves, but we feel fully competent from our knowledge of business conditions to discuss the other phase of the question. We know, and every packer of catsup and similar goods knows, that it is possible, by using benzoate of soda, to make catsup from catsup stock or so-called "pulp," made from the waste and refuse of canning factories, instead of from whole, ripe tomatoes, and that it is also possible to use stock in a condition and of a character that could not be used unless benzoate of soda were added to prevent the further development of mold, fermentation, or decay. We don't mean to suggest that everyone using benzoate of soda uses such stock. There are a number of packers of fancy, high-grade goods who, for reasons that seem good to them, do not wish to put out goods without preservative, and who, nevertheless, employ nothing but the best of materials in the manufacture of their goods, but we do say most emphatically that the manufacture of cheap, low-grade goods from canning factory waste, often handled in the most uncleanly and in-

sanitary manner, is only possible through the use of benzoate of soda or some other chemical preservative, and the poorer the quality of stock used the greater proportion of preservative necessary.

We are free to admit that we have not always taken our present view of this preservative question. Until a very few years ago no objection had ever been raised to the use of preservative, and packers generally accepted the statements of the chemical manufacturing concerns to the effect that such preservatives were absolutely noninjurious. Until recent years, the preservative in common use was salicylic acid, and when the question was raised as to its injuriousness, we were offered benzoate of soda as a substitute, with the assurance not only of the manufacturers, but in many cases of the chemists of the state food commissions, that benzoate of soda had none of the objectionable features of salicylic acid, and was not injurious in any way. It was the universal belief that a preservative of some kind was absolutely necessary in goods such as we are packing; not so much to prevent fermentation and mold before opening, as to prevent spoilage after the bottles are opened, owing to the fact that from the manner of their use the contents of the bottles are exposed to the air and to consequent contamination from germs in the air for a long time before the entire contents of the bottle are consumed. Consequently, when the question was raised as to the injuriousness of benzoate of soda and all other preservatives, we felt that the life of our business was at stake, and that the position taken by Doctor Wiley in opposition to all preservatives was arbitrary and incorrect, and, in common with other packers, the writer fought that position in every possible way.

The extension of the use of preservatives into so many other lines, the fact that it became almost universal, the objection raised to the use of preservatives or drugs in foods by many friends of the writer who are physicians, the growing sentiment against preservative on the part of consumers, all combined, tended to convince us that there was at least a reasonable doubt as to the injuriousness of benzoate of soda, and we therefore began our experimental work on nonpreservative goods with a view to meeting conditions that we believed were bound to come. In this we were assisted by the Department of Agriculture, notwithstanding the position we had taken in opposition to Doctor Wiley's views on the preservative question. The department sent one of their expert chemists to our factory in 1907 to work on this matter, and the entire experimental work on nonpreservative catsup was done at our Terre Haute plant. The result of that work, together with later experiments of our own, convinced us not only that catsup could be prepared without preservative so that it would keep a satisfactory length of time after opening, but also convinced us that we could prepare goods of a character that were superior to those which we previously put out with preservative, the only requisite being greater care in the selection of materials, more sanitary methods of handling, thorough sterilization after closure of the packages, and some modification of our formulæ in the way of spices, vinegar, and sugar, but which did not materially alter the character of the goods. Practically our entire pack of last season was put out without preservative, and we would be glad to see preservative entirely prohibited for the future in goods of every kind; but if it is impossible to reach this result either through action of the Agricultural Department or by amendment to the food law, we feel that a ruling should be made which will designate the preservative or preservatives to be used in foods, and which will limit the proportionate quantity or percentage to an amount not more than sufficient to prevent spoilage in goods when made from the very best of materials, and which will be insufficient to prevent spoilage in goods which are made from stock or materials that are in any way unsound or handled in an uncleanly or unsanitary manner.

We will be glad to hear from you as to your object in taking this matter up with us, and if you are taking the nonpreservative side of the question, will be glad to give you any further information in our power.

Yours, truly,

THE LOUDON PACKING CO.,
CHAS. F. LOUDON, *President*.

I will now read briefly from an address of L. S. Dow, of the Heinz Company, before the Society of Chemical Industry in New York on October 23, 1908, as showing the animus of these vicious assaults upon the Bureau of Chemistry and the reasons for the vigorous efforts of certain manufacturers to have a board created which should supersede in authority the present legally constituted authority for the enforcement of the pure food and drug act:

Having then disposed of some of these leading points that are commonly made against the practicability of a ruling that will prohibit the use of benzoates in tomato catsup, I hope to your entire satisfaction, although we shall be prepared to offer some further and very tangible proof upon the subject right here this evening, the question naturally arises, Why should any reputable manufacturer desire to continue the use of a questionable substance in his product? Gentlemen, that I can not understand, and I have never been able to answer it satisfactorily to myself for some very reputable concerns. Even a cannery by-product, the cheapest and lowest of all raw tomato products, can doubtless be pulped and made into a semblance of catsup without an artificial preservative if it is well enough cared for and properly handled; but apparently the trouble with most of—what I think may be fairly termed without offense—the reactionary interests lies in the fact that it costs too much to properly care for this refuse; that it costs too much to maintain sanitary premises; that it costs too much to employ skill and exactness; that it costs too much to put food value into a product instead of water.

From a pamphlet recently issued under the authorship of one of our esteemed competitors, who is present here this evening, and entitled "Thoughts and Suggestions Evoked by Pure Food Legislation," we quote as follows:

"There are two kinds of food and drug producers affected by the law, i. e., those that believe certain preservatives are harmless, or even beneficial in limited quantities, and those who don't care whether they are or not, as long as money can be made by their use. The moral difference between the two is apparent at a glance, but unfortunately the inhibition of antiseptics in food products has the same effect on both—great injury to or complete ruin of their business.

"The common interest brings them together in opposition to the enforcement of the law according to Dr. Wiley's conception of what the law means, as well as to the details of its enforcement.

"Consequently they would rather have no law, or have it emasculated or nullified, than to lose their business, and the first class mentioned, seeing no escape from Doctor Wiley's opinions or decisions under existing conditions, feels constrained to join issue with the criminal class, excusing themselves by the law of self-preservation."

I wish to read from the Indianapolis News of January 30, 1909, to show the attitude of many manufacturers of legitimate food products toward the question of the necessity of the preservatives:

Legitimate food interests of America have come to the fore to defend Dr. H. W. Wiley, Chief of the Bureau of Chemistry, and to combat the efforts being made by the heretofore dominant element of the trade to defeat the ends to which pure-food legislation has been aimed, namely, the protection of the country's food supply. An organization of manufacturers, opposed to the use of chemical preservatives and colorings in goods, was formed at a convention held this week in the Waldorf-Astoria, New York, pursuant to a call issued by Paul Pierce, editor of the National Food Magazine.

A glance at some of the names of the charter members of this association shows clearly that it is not an organization to be ridiculed. Among the members are: The Shredded Wheat Company, Niagara Falls, N. Y.; Merrell-Soule Company, Syracuse, N. Y.; H. J. Heinz Company, Pittsburg, Pa.; Columbia Conserve Company, Indianapolis, Ind.; the Franco-American Food Company, Jersey City Heights, N. J.; J. Hungerford Smith Company, Rochester, N. Y.; Beech-Nut Packing Company, Canajoharie, N. Y.; F. C. Hazard & Co., New York City; Price Flavoring Extract Company, Chicago, Ill.; J. W. Beardsley's Sons, New York City; and W. R. Roach & Co., Hart, Mich.

Practically all of these manufacturers are manufacturing, without the use of chemical preservation, the very food products that food adulterators say can not be successfully manufactured and marketed without the addition of these harmful chemical ingredients.

REFEREE BOARD'S ACTION.

Like all harmful preservatives, there always is room for argument as to just how great a quantity the human system can stand. It appears to be admitted by all that benzoate of soda is harmful, but the referee board says that it is not harmful in certain quantities used in food products, but the board does not tell us what the effect would be on the consumer if there was a little of this preservative, or some other like preservative, in most of the foods we are obliged to eat. If 10 chemists swear that benzoate of soda poisons the child that eats it, and 10, 20, or even 30 others swear that he can manage to eat it and live, why should the risk be taken, anyhow?

Why should any manufacturer desire to use these adulterants, when it is shown by the product of many other manufacturers that their use is absolutely unnecessary to successful food preservation? In the answer to this question lies the meat of the whole subject. It is because by the use of this drug the unscrupulous manufacturer is enabled to realize large profits by employing in his product raw materials that are unfit and unwholesome to the point of exciting extreme disgust at their mere mention.

Since the legitimate food trade is on the side of the people and supporting Doctor Wiley in his stand against the use of artificial chemicals in food products, and leading chemists have declared these artificial preservatives to be poisonous, the fact that the referee board has come to the conclusion that they are not injurious in small doses ought not to have much weight.

To say that benzoate of soda is not injurious in small doses is an implied admission that it is injurious in large doses; and as so many chemists in both Europe and America declare it to be poisonous, the consumer should at least be given the benefit of the doubt, especially so when leading food manufacturers have organized and taken their stand on the side of the head of the Bureau of Chemistry and in favor of the people.

Many of these manufacturers of legitimate foods, who have souls and consciences, would rather go out of business than to be responsible for such widespread disaster as they firmly believe results from the chemical treatment of food products. They say that preservatives are unnecessary for the treatment of food when pure raw products are employed and when absolute cleanliness is observed in the manufacture. It would seem that our national authorities ought to side with this class of manufacturers and with the people instead of with the class of manufacturers which caused the pollution of America's food supply before the enactment of the national food law.

We are going to win this fight for the people in spite of every food adulterator in America. What are the "business interests" of a few questionable manufacturers compared with human life? Already the law has delayed and compromised in the fear of injuring the finances of these same gentlemen—always against the protest of Doctor Wiley—and now, waxing bold, they are attempting to discredit and depose the one absolutely fearless and incorruptible man who is working scientifically and unselfishly in the interest of the consumer. If right conquers at last in all battles, we're going to win this fight and free America from this particular graft permanently.

Mr. W. P. Hapgood, a member of the association and a food manufacturer of Indianapolis, said: "Over 50 per cent of the tomato catchup on the market is made from skins, parings, and rotten tomatoes taken from the refuse of other canning houses. Of course the discarding of preservatives would put such manufacturers out of business, but the public conscience ought to compel such business to cease."

L. S. Dow, of the H. J. Heinz Company, is opposed to preservatives. He said: "Let the public come to realize all the significance of that benzoate of soda label and a sentiment will be aroused that will sweep all preservatives off the earth. Sterilization is sufficient for preserving all canned foods. I state unreservedly that every fruit or vegetable product can be successfully put up in a commercial way without artificial, poisonous preservatives, if the fruit be sound and wholesome, and put up under sanitary conditions. If any man's business will be ruined by the enforcement of the food laws of the country, as it is often claimed, investigation into that business, if it goes deep enough, may perhaps show it to be of a character that justifies its extermination in the interest of the public, in whose interest food laws were created."

M. E. Biardo, of the Franco-American Food Company, declared that never in twenty-three years has he used chemical or preservative. The only trouble is that the innocent have to suffer for the sins of the guilty, because the public does not know how to discriminate.

ALL OPPOSE ADULTERATION.

Bartlett Arkell, president of the Beech-Nut Packing Company, expressed himself as enthusiastic over this new association. He said: "We can manufacture any food better without a preservative than any other person can make the same product with a preservative; and if we ever find there is a food product that we can not make more successfully without a preservative, we will not manufacture that product."

Sebastian Mueller, another food manufacturer, said: "There is no honest food product on the market to-day made out of fruits and vegetables which can not be successfully and satisfactorily packed with-

out the aid of chemical preservatives, and I wish to predict that no manufacturer engaged in the making of fruit or vegetable products will discontinue his business or be forced to discontinue it if chemical preservatives are absolutely and for all time ruled out of food products."

RESOLUTIONS SENT TO PRESIDENT.

Whereas opinions of leading scientists in both Europe and America are divided upon the subject of artificial preservatives in prepared foods, there being great weight of opinion on both sides of the controversy, thus leaving the question of their injuriousness or otherwise still in doubt; and

Whereas, as practical manufacturers, we know that artificial preservatives of any kind are unnecessary to the successful commercial preparation of good, sound raw materials under proper sanitary conditions, thus making it both possible and reasonable to give the consuming public rather than the reactionary manufacturing interests the benefit of that doubt; and

Whereas the use of artificial preservatives makes possible and invites the employment of inferior and waste materials, often totally unfit for human consumption, and of careless methods and insanitary conditions in food preparations; and

Whereas we believe that not only will the reputation and standing of the great American food-producing industry be jeopardized, but that the interests of all the people will be sacrificed by any action on the part of the Government that permits the continued use of any artificial preservatives in any food product: Now, therefore, be it

Resolved, That we are opposed to any ruling under the national food and drugs act of June, 1906, that permits the use of artificial preservatives in foods, or that in any way departs from either the letter or the spirit of that law.

The impression has gone abroad that the War Department gives no weight to the opinions of the Bureau of Chemistry's decisions touching matters of food adulterations in the purchase of supplies for the army. Let me read the correspondence between the Commissary-General and me in this matter:

WASHINGTON, D. C., *January 30, 1909.*

Hon. H. G. SHARPE,
Commissary Department, U. S. Army, Washington, D. C.

MY DEAR SIR: It has come to my attention that it is claimed that you request that the catsups and pickles which you purchase for the army be preserved with benzoate of soda. If you find it convenient I wish you would favor me, and without delay, with a statement in this matter, and with any official documents which touch upon it.

Very truly,

A. F. LEVER,
Member Congress, Seventh South Carolina.

WAR DEPARTMENT,
OFFICE OF THE COMMISSARY-GENERAL,
Washington, February 1, 1909.

Hon. A. F. LEVER, M. C.,
House of Representatives, Washington, D. C.

MY DEAR SIR: Replying to your letter of January 30, I desire to invite your attention to the inclosed copy of Circular 4, issued from this office under date of March 27, 1908, and to serial No. 322, on page 11 thereof, which simply calls for "sauce, tomato catsup," and specifies the number of pint bottles to a case. Attention is also invited to paragraph 1, on page 12 of this circular, under "Conditions governing in the purchase of subsistence stores." This latter paragraph distinctly states that supplies purchased by the Subsistence Department are subject to interstate shipment, and, consequently, such supplies must be bought in conformity with the pure-food law and the meat-inspection law and the regulations made pursuant to such laws. The attention of bidders is also invited to the standards of purity for food products prescribed by the Secretary of Agriculture. From all of which it is evident that the assertions made that the specifications require catsup to be put up with benzoate of soda are not correct.

The same applies to pickles, the specifications for which are found under serial Nos. 89 and 90 of the same circular.

Very respectfully,

HENRY G. SHARPE,
Commissary-General.

The attitude of the courts to which prosecutions under the pure-food act have been carried, may not be out of place in this discussion, and I quote from the opinion of Judge Smith McPherson, of the district court of the United States, western district of Missouri:

Adulteration of goods and false labeling had become so common that it was well-nigh impossible to purchase pure goods or that which was called for. The same was true as to medicines. Congress undertook to remedy it. The one purpose was to prevent the sale of adulterations. The other purpose was to enable a purchaser to obtain what he called for, and was willing to pay for. And under this latter view it is immaterial whether Michigan fruits are better than those grown in Arkansas. A purchaser of canned goods may prefer Michigan fruits. He may believe them to be better than Arkansas fruits. He has the right to call for them, and when he pays or is debited for them, he has the right to have Michigan fruits. The purchaser has the right to determine for himself which he will buy, and which he will receive, and which he will eat. The vendor can not determine that for the purchaser. He of course can make his arguments, but they should be fair and honest arguments.

This statute is to protect consumers and not producers. It is a most beneficent and righteous statute, and within the powers of Congress to legislate concerning, and should be enforced. It can not be enforced if it is to be emasculated, as is sought in the present case.

I quote also from Judge Anderson, of Indiana, in a recent deliverance from the bench:

Such men as Doctor Wiley and the Indiana state board of health knew what they were doing when the benzoate was prohibited.

And he (the judge) did not intend to show his ignorance of the subject by even considering the complaint at all; and he further said:

I am of the opinion that benzoate of soda is used, if at all, to cover up inferior quality of vegetables or fruits and insanitary processes of packing. I don't know, and don't care, whether it is a poison or not, it is only used to cover fraud and deception.

And now, Mr. Chairman, having brought this matter to the attention of the House, I feel that my duty is done. It remains for you to act. At the proper time I shall offer amendments which will provide that no part of the appropriation for the Bureau of Chemistry shall be used for either the Board of Pure Food and Drug Inspection or the Referee Board of Consulting Chemists. I believe their existence can be of no value to the public; I believe the exercise of their authority handicaps, hampers and nullifies, in a measure, the enforcement of the pure food and drugs act in the spirit which Congress intended it to be enforced. I believe the lives and health and the protection of our people against fraudulent foods are matters of too great importance with which to dally. The pure food and drugs act should be enforced liberally in the interest of the great consuming public or it should be repealed, that the public might know that there was no sincere intention to enforce it. If we are to enforce it, let us take the millstones of specially appointed boards and commissions, appointed without authority of law and at the demand of dishonest manufacturers, from the neck of the Bureau of Chemistry, which is charged with the statutory duty, and which alone is charged with the statutory duty, of furnishing the scientific facts upon which the Secretary of Agriculture and the courts must rely in their decisions. [Loud applause.]

Mr. SCOTT. Mr. Chairman, I yield thirty minutes to the gentleman from Missouri [Mr. BARTHOLDT].

Mr. BARTHOLDT. Mr. Chairman, there was a time in our history—and it is not so very long ago—when at least one of the great political parties seriously questioned the constitutionality of internal improvements if undertaken or proposed to be undertaken by the National Government. Luckily that day is passed. Then there came a period when the people indifferently accepted or quietly acquiesced in the policy of their farseeing statesmen looking to the improvement of rivers and harbors as a means of accommodating the growing commerce of the country. This period lasted up to the latter part of the last century. While fully realizing the benefits of cheap water transportation, and while a few organizations here and there were petitioning for an improvement policy on a larger scale, yet the masses of the American people were content with such appropriations as Congress could make after the legitimate needs of the Government in all other directions had been met. Then there came a great change. The people suddenly awakened to the importance of improving and maintaining the waterways as natural channels of trade in competition with the railroads and for the regulation of railroad rates. Organizations were formed all over the country for the promotion of special projects, and the demands upon Congress for larger appropriations became more and more urgent, until to-day both political parties are pledged to heed them, and neither can afford to longer ignore them. Owing to freight congestion and other causes these demands have, in fact, assumed the proportions of a great popular movement which has drawn into it, by its own momentum, the larger portion of the people of the United States.

The question of the hour is: How will Congress meet the demand? Shall progress be halted? Shall the wheels of commerce be stopped and the benefits of water transportation be withheld from the people because our revenues do not exceed our expenditures sufficiently to pay for these great improvements? My answer is that these improvements will never be made, either during the life of the present or that of future generations, if we shall have to solely depend upon an annual surplus in the Treasury, and this for the simple reason that there will either be no surplus at all or it will not be large enough to carry out the greater projects which the necessities of commerce are now forcing upon the attention of Congress.

Foreseeing this situation, Mr. Chairman, I had the honor to introduce in January, 1907, more than two years ago, a bill for the issue of waterway bonds to the amount of $500,000,000. It was the first bill of its kind ever introduced in the House, and I remember well the skepticism, derision, and hostility with which it was received in many quarters. Even friends of waterway improvements shrugged their shoulders, and last year's Waterways Congress, while flirting with the proposition, did not care to openly espouse it. But since then what a change! To-day the President of the United States, the President-elect, the Vice-President, the Secretary of State, and the National Rivers and Harbors Congress are on record as heartily indorsing the plan, and a committee of the latter has just introduced a bill with identically the same object in view. Permit me to say in this connection that I have no pride of authorship. I am after results rather than glory and willingly join hands with my colleagues to work for a common cause. But I owe it to the merchants of St. Louis to state that lasting credit is due to them for their inception and steadfast support of this plan,

and for the encouragement and inspiration I have received at their hands in the effort of pointing out what is evidently the only way in which the hope for a more comprehensive policy of waterways improvement can ever be realized. The merchants of St. Louis are, in fact, the real pioneers of the bond movement.

Now, Mr. Chairman, let me give you the reasons for my advocacy of an issue of waterways bonds. It has been and is the practice of Congress to first provide for all the legitimate needs of the Government, and then, if anything is left, to set it aside for waterways, public buildings, and so forth. If all the revenues are needed for the regular expenses of the national household, it is the doubtful privilege of the friends of internal improvements to hold the bag. I venture to say, if the Government is to enter upon a policy favoring systematic internal improvements, a regular annual budget should be provided for that purpose, the same as for the army and navy and all other departments. Perhaps we shall live to see the day when that will be done, under a proper readjustment of expenditures such as will no longer permit our military and naval budgets to devour two-thirds of all our revenues; but for some years to come, I am afraid, such a readjustment will be impracticable, if not impossible. Under the present system, then, how long will we have to wait for our much-needed improvements? Suppose three millions a year were appropriated for the proposed 14-foot waterway from the Lakes to the Gulf, shall we wait thirty years for it? Shall a whole generation go down to their graves before advantages so apparent to all can be secured because the richest nation on earth can not do what smaller and poorer ones have accomplished long ago?

No one will seriously contend that it is anything but a question of money. And this being the case, we may well ask whether the projects to secure navigable channels from the Lakes to the Gulf, in the upper Mississippi, the Missouri, the Ohio, and other rivers shall wait until an income tax or an inheritance tax shall have yielded sufficient revenue to pay for them? I say no. Already the people have waited too long and too patiently for these beneficial improvements, and from the temper of their conventions we have good reason to infer that any good and equitable method to raise the necessary funds would be satisfactory to the people. [Applause.]

What would a level-headed business man do if he found that an enlargement of his plant or his store was sure to yield him greater profit, and yet he could not defray the extraordinary expenses out of his receipts? Why, he would not hesitate a moment in taking up a loan. The Government, I insist, should be controlled by the same business principles and do exactly the same thing. An issue of 2 or 3 per cent bonds to the amount of $500,000,000, to be distributed over a period of, say, ten years, will suffice to complete all great waterway projects whose improvement has received the official recommendation of the United States Engineer Corps, and will forever solve the problem of the permanent improvement of our great waterways. It is my deliberate judgment that it can not be done in any other way.

I am well aware of the existing prejudice against an issue of bonds in time of peace. This prejudice would be justified if the Government proposed to mortgage the future in order to meet its running expenses; but here we contemplate an extraordinary expenditure, with an ample return for every dollar, and with all the guaranties of a permanent investment for the lasting benefit of the present as well as future generations. [Applause.] No living American has dreamed of objecting to the Panama Canal loan, though this is an enterprise which we have undertaken for the whole world. Why, then, should there be objection to an undertaking which is of particular and exclusive benefit to the people of the United States? Charity begins at home, and surely it will not be urged that the Panama Canal will be more important to the American people than a ship canal through the heart of our own continent, connecting the Gulf of Mexico with the Great Lakes. But if both projects were of equal importance, why not strive for the equal realization of both and by the same means?

A justice of the Supreme Court has recently stated on the lecture platform that we are running into debt. He may have had state and municipal indebtedness in mind, but as to the Nation the assertion is hardly justified. It is true that on account of the Spanish war we issued $198,000,000 3 per cent bonds, and that $30,000,000 of 2 per cent bonds were sold in aid of the construction of the Panama Canal, but these were extraordinary expenses, while in reality the Government has redeemed 2 per cent bonds of the loan of 1891 amounting to $25,364,500. It has also purchased for the sinking fund about $87,000,000 of bonds belonging to the 3 per cent loan of 1898–1918, the 4 per cent loans of 1907 and 1925, and the 5 per cent loan of 1904, a total reduction of the national debt since March, 1897, of over $112,000,000; and, by the way, $10,000,000 interest charges are annually saved by the conversion of 3, 4, and 5 per cent bonds to 2 per cent bonds. In other words, but for these extraordinary expenditures our national debt would have been reduced more than $112,000,000 during the last two years, and the interest charge on account of a new loan of $500,000,000 would not be any more than what the Government has saved in interest by the conversion of bonds.

It may also be pertinent to inquire how the public debt of the United States compares with the national debt of other countries. Here it is in round numbers:

France	$6,000,000,000
Russia	4,000,000,000
United Kingdom	4,000,000,000
Italy	3,000,000,000
Spain	2,000,000,000
Austria-Hungary	1,000,000,000
German Empire	855,000,000
United States	944,000,000

This means that the national debt of France, with not half the population, is more than six times as large as ours; that of Russia and England more than four times as large; that of Italy three times, and that of Spain twice as large; while economical Germany nearly comes up to our figures, though her population is barely two-thirds of that of the United States. If we add the debt of the several German States, the total will reach nearly $4,000,000,000, while in our case the national debt and that of all the States put together amount to $1,178,000,000. It is safe to say that each one of these countries has done more for its water courses than the United States; in fact, it has been figured out that France alone has expended more for river improvements since the Franco-German war than America has since the formation of the Government.

National economists have long ago ceased to regard a public debt as an unmixed evil. It is a well-understood truth that every man who has a dollar invested in the Government is interested in its maintenance; and in the United States, where government bonds are the only recognized basis for national-bank note circulation, such bonds are a commercial necessity of the first importance. So in a limited sense it is true, even in America, that a "national debt is a national blessing."

The plan I have outlined is not a mere passing fancy, but the result of a most careful deliberation, as well as the most disheartening experience. It has been born of the absolute conviction that the western rivers are doomed to complete abandonment unless the Members of Congress from that section, true to the demands of the people, make their development a distinct issue here, with the rallying cry of a national loan for internal improvements. If the actual situation here were generally known, nothing short of a bond issue would satisfy the people. As matters stand to-day, the chances for the real great and important projects are almost hopeless, and will remain so as long as the friends of waterway improvements must content themselves with the crumbs that fall from the government table. And in some years there are not even crumbs, because, like at present, expenditures exceed revenues by many millions of dollars.

These are the reasons which have impelled me to assume, after mature reflection, the responsibility of advocating a bond issue and of introducing the bill to which I have called attention. The logic of the situation demands this course as the only one possible to secure to the American producers and consumers the vast benefits of cheaper transportation and the increased facilities made necessary by our growing commerce. [Applause.]

In conclusion, let me say that we of the Mississippi Valley readily subscribe to the maxim that a policy and not a project should be advocated. While we are more interested in one project than in another—and the same is true of every Member on this floor—yet we favor the systematic improvement of all waterways of the country as a permanent policy. During my service here I have come to realize that no project, be it ever so great and national in scope, can be realized without the cooperation of all. Under our system, which makes the return of a Representative depend upon his success in the furtherance of local interests, the improvement of Newtown Creek is just as important, if not more so, to the Member from Long Island than is the improvement of the Mississippi River to the Member from Missouri, and the votes of both can only be secured if the favored projects of both receive due consideration. And we are not only in favor of this policy but also of the means to carry it out, and we favor the expedient of a bond issue on the theory that those who come after us should bear a just share of the burdens for their share of the benefits. [Loud applause.]

Mr. LAMB. Mr. Chairman, I yield fifteen minutes to the gentleman from Alabama [Mr. HEFLIN].

Mr. HEFLIN. Mr. Chairman, under the law now the Department of Agriculture collects reports from the cotton producers of this country. These reports are made to the department and the Secretary of Agriculture makes an estimate as to what the crop will be; we also have the ginners' report of the cotton ginned. These reports are received and published monthly. And believing, Mr. Chairman, that it was just and fair to the cotton farmer that there should be some report made by the manufacturer, I have contended, and still contend, that the manufacturer ought to report to the Government once every month or once every sixty days, at least, showing how many bales of cotton he has purchased during that time and what amount has been manufactured into goods. I think that this is just and fair.

When Doctor Olmsted, of the Statistical Bureau of the Agricultural Department, was before the Agricultural Committee during the hearings, I brought this matter to the attention of the committee, and I asked Doctor Olmsted:

What is the purpose of these reports?

Mr. OLMSTED. The purpose is to secure prompt information that is constantly demanded and required regarding crop conditions and prospects, which, as you know, are the basis of business.

Mr. HEFLIN. Gives that information to the manufacturer?

Mr. OLMSTED. To the farmer, the dealer, the implement man, the manufacturer, and to everybody.

Mr. HEFLIN. It gives reports as to what the producer is going to bring in the market. Do you not think it would be just and right that the manufacturer should make reports also, so that the producer would know what was on hand?

Mr. OLMSTED. I think that would be a good idea for the proper bureau, the Bureau of Manufactures, perhaps; they might take the matter up. Take, for example, during the growing season. Everyone who has any business of any kind, I think, without exception, wants to know what the crop prospects are, whether they are favorable or not, for they desire to adjust their affairs to the prevailing conditions.

Mr. HEFLIN. Exactly; and if the planter knew from the manufacturer, from time to time, what he needed, it would enable him to know how much to plant in certain years.

Mr. OLMSTED. It would have a bearing along that line.

Mr. HEFLIN. The cotton manufacturer should report the amount of raw cotton on hand at the factory, so that the producer will know how much cotton that factory will have on hand when he goes to plant his cotton.

Mr. OLMSTED. That would be an excellent feature for the census report.

Mr. Chairman, I am glad to get this valuable testimonial from Doctor Olmsted.

Mr. Chairman, our farmers are justly demanding this legislation. It is just, and it is right, and I do not believe that any manufacturer who wishes to be fair and to do the just thing will complain. I have manufacturers of cotton in my district, and I live in the largest cotton-producing district in the State of Alabama, and I am proud to claim the friendship of both producer and manufacturer there.

In the interest of justice and in the interest of fairness, I ask that this legislation be had, and to the end that the House may have the opportunity to act in this matter I shall introduce a bill to-day, which I trust may become the law. I shall include this bill in my remarks:

A bill (H. R. 27605) to provide for collecting statistics from the manufacturers of cotton goods in the United States.

Be it enacted, etc., That the Department of Agriculture shall call upon the manufacturers of cotton goods in the United States once every sixty days and ascertain how many bales of cotton have been purchased by said manufacturers during the preceding sixty days, and how much cotton has been manufactured during that period, and also how much bale cotton is on hand at that time.

The Department of Agriculture shall publish this information next after the passage of this bill on the 1st day of September, on the 1st day of November, on the 1st day of January, on the 1st day of March, on the 1st day of May, and on the 1st day of July.

SEC. 2. That for the purpose of carrying out the provisions of section 1 of this act there is hereby appropriated $10,000, or so much thereof as may be necessary.

Mr. Chairman, the law now requires monthly reports to be made regarding the conditions and prospects of the cotton crop of the United States. This is valuable information to the manufacturer of cotton goods, and I think that it is fair and right that the manufacturer of cotton should make monthly reports to the Government. This would be valuable information to those who produce cotton.

If you want the manufacturer to know how much cotton the farmer will produce, why do you not want the farmer to know how much of his cotton the manufacturer will need?

The Government furnishes the manufacturer, not only with crop estimates, but with the ginners' reports, showing the exact number of bales of cotton ginned from the time cotton first opens in the early fall until the last pound is picked and ginned.

The manufacturer does not have to guess at the size and condition of the cotton crop; the Government keeps him posted. The field agents employed by the Government go over these cotton fields, and they report on crop conditions, and the Secretary of Agriculture, under the law, makes an estimate as to what the crop will be. These reports are published. The manufacturer knows what the producer of cotton is doing, for the Government tells him; but the producer does not know what the manufacturer is doing, and the Government does not tell him.

I submit to this House that we ought to require reports from producer and manufacturer alike, or we ought to abolish these reports altogether.

As the matter stands now, you cause the producer to give an account of every bale of cotton ginned, and at the end of the statistical month the manufacturer knows just how many bales have been ginned. He compares the amount with former reports, and this enables him to tell in a measure about what the crop will be, and he conducts his business in the light of this information.

Mr. Chairman, no monthly report is made of the supply of raw material that the manufacturer of cotton has on hand or the amount of goods manufactured. If it is fair to show the manufacturer the producer's hand, why is it not fair to show the producer the manufacturer's hand?

But some gentlemen say that this is prying into the manufacturer's private business. If that be true, we are now prying into the cotton producer's private business when we require that he report every pound of lint cotton that he has grown, and "sauce for the goose should be sauce for the gander." Why not keep the producer informed as to the number of bales of cotton that pass into the hands of the manufacturer monthly? Why not publish monthly, or every two months at least, the quantity of cotton goods manufactured? Then at the end of the year give the number of bales bought and the amount of goods manufactured and sold by all the cotton mills in the United States. If you would do this, the producer of cotton would have some idea of what the demand for the raw material would be, and it would enable him to market his cotton more intelligently. He would govern his business in the light of this information.

Under present conditions the producer knows nothing about the manufacturer's stock in store, but the manufacturer knows everything about the cotton producer's business from the time he places seed in the ground until the cotton is ginned, baled, and ready for the market. There is nothing unfair or unreasonable in this demand. The producer of cotton is simply asking for himself just what the manufacturer of cotton has asked for himself.

The Government has granted the request of the manufacturer, and now, in the name of the men who toil and produce that staple which clothes the world and gives to the United States the balance of trade, I plead for fair and just treatment at the hands of Congress.

Do for the producer of cotton what you have done for the manufacturer of cotton; give him the information that he needs in order that he may run his business intelligently. Place both upon a common level; we ask no more. [Applause.]

Mr. LAMB. I yield twenty minutes to the gentleman from Mississippi [Mr. CANDLER].

[Mr. CANDLER addressed the committee. See Appendix.]

Mr. LAMB. Mr. Chairman, I yield two minutes to the gentleman from Texas [Mr. SHEPPARD].

Mr. SHEPPARD. Mr. Chairman, I desire to correct an item in the trust table inserted by me in the RECORD a few days ago. On page 1487 of the RECORD the amount of exports by the farming-tool trust is given as $7,000,000. This is a misprint; the amount should be $500,000. This trust covers hand tools only. The misprint was directed to my attention by Mr. Miles, the author of the table.

In a recent letter to me Mr. Miles makes the following statement regarding the operation of the present tariff:

I feel that your State of Texas is one of those which is most concerned and most victimized, so to speak, by tariff excess. I can not see that you are helped a dollar's worth of cotton, corn, wheat, or cattle, and very little on lumber, and yet you pay your full quota of the excessive taxes or graft which the trusts collect, and which is estimated at anywhere from $500,000,000 to $1,000,000,000.

Mr. LAMB. Mr. Chairman, the few minutes of the time I have remaining I yield back to the gentleman from Kansas [Mr. SCOTT].

Mr. SCOTT. Mr. Chairman, I am greatly obliged to the gentleman from Virginia for his generosity, and will take ad-

vantage of it by yielding ten minutes to the gentleman from West Virginia [Mr. STURGISS].

The CHAIRMAN. The gentleman from West Virginia is recognized for ten minutes.

Mr. STURGISS. Mr. Chairman, I desire to consider the bill under consideration from a business standpoint. Every enterprise must be judged by the amounts of its receipts and expenditures to ascertain whether it is a business success. I desire to submit some facts and figures relating to the Bureau of Forest Service, which are drawn from official sources, and which are so striking that they must command the attention and confidence of the House.

EXPENDITURES AND RETURNS—SUMMARY.

Since it took charge of the national forests in 1905, the total expenditures of the Forest Service for the fiscal years 1905, 1906, 1907, and 1908 have been, in round numbers, $7,250,000. By classes, these expenditures have been approximately as follows:

General administration of the Forest Service	$500,000
Use, maintenance, and protection of the national forests	4,900,000
Permanent improvements on national forests	675,000
Studies	1,175,000
Total	7,250,000

Under general administration of the Forest Service is included the salaries and expenses of its administrative officers in Washington, and of its general inspectors. It will be observed that the total charge for administration is less than 10 per cent of the total expenditure for the period specified. This compares very favorably with the proportion between the expenditure for general administration and operating expenses in large business enterprises comparable with the Forest Service.

Under use, maintenance, and protection of the national forests is included the salaries, station, field and traveling expenses of the executive and protective force upon the national forests, the rent of supervisors' headquarters, and the purchase of the necessary equipment and supplies.

Under permanent improvements on national forests is included the construction and repair of roads, trails, telephone lines, fire lines, bridges, fences, rangers' cabins and barns, and other permanent improvements needed to safeguard the national forests from fire and to develop their fullest possible use by the people.

Under studies is included investigations of forest conditions and needs upon the national forests, required to promote the use and protection of these forests; and the work of the Forest Service independently and in cooperation with States and private owners, aimed at bringing about a more conservative use of forests not in federal ownership, and of forest products.

EXPENDITURES AND RETURNS.

1. ON NATIONAL FORESTS.

Since the Forest Service took charge of the national forests in 1905 it has expended upon them in the fiscal years 1905, 1906, 1907, and 1908, for their protection and for the handling of current business, $4,900,000. The receipts from the national forests from all sources, for the same period, have been about $4,200,000. The net cost of the national forests to the Federal Government during this period has been $700,000. The amount expended in this period for the construction of roads, trails, and other permanent improvements is $675,000.

The States in which the national forests lie have since 1905 received $675,606 of the receipts from national forests, for the maintenance of schools and roads.

When the Forest Service took charge of the national forests on February 1, 1905, their total area was 63,027,884 acres. Their total area is now 168,681,039 acres, or over two and one-half times as much. The protective force was utterly inadequate in number and low in efficiency. Practically nothing had been done to promote the use and protection of the national forests by the construction of roads, trails, telephone lines, and other improvements, and the benefits of these forests to the people were very slight. Before the service took charge of them, the national forests constituted a resource whose usefulness had been little developed, and whose safety was seriously endangered by lack of effective administration on the ground.

At a money cost of $700,000 to the Federal Government, the Forest Service has accomplished these things upon national forests. It has increased their value, their usefulness, and their safety from fire by the construction of 708 miles of roads, 9,421 miles of trails, 3,400 miles of telephone lines, 50 miles of fire lines, over 400 cabins for its rangers, and 644 miles of fence. It has planted 2,500,000 trees, and it has 9,000,000 more in its nurseries as stock for future planting. It has issued 87,219 grazing permits, under which 4,289,203 horses and cattle and 21,216,381 sheep and goats have been grazed. It has made 8,663 timber sales, and it has granted 66,182 permits for the free use of timber for domestic purposes by settlers. More than half of the 5,923 permits issued for the conservative use of lands for special purposes of various kinds have been given free of cost to those who benefit by them. Applications for agricultural settlements to the number of 2,514 have been approved, which has opened 295,000 acres to farming. The total number of permits of all kinds issued for the use of the national forests is close upon 200,000. The total amount invested by the Forest Service in permanent improvements on the national forests is $675,259, or nearly twice the net cost of administering these forests for four years.

Through the administration of grazing on national forests by the Forest Service range wars within them have absolutely ceased. The investment of productive capital in national forests by the people of the West in power plants, sawmills, transmission lines, railways, and other improvements has increased by many millions of dollars, giving added employment to labor and added industrial development to the regions in which the national forests are situated. The use of the national forests by the people has multiplied many times in every respect; but the use of the national forests by the small owners has increased in proportion to its use by the large owner in the relation of 10 to 1.

In 1902, under the administration of the national forests by the General Land Office, an average of 5½ acres to every 1,000 acres were burned over. In 1907, under the administration of the Forest Service, less than 1 acre per 1,000 acres burned over. In 1908 the Forest Service saved, compared with the forest-fire damage on a similar area of private forest lands, $34,000,000 worth of timber in national forests by its fire patrol.

These facts shows that the total net cost of administering the national forests is utterly insignificant compared with the results attained in the increased usefulness of the national forests to the people and in the actual value of the national forests themselves, through their development by the construction of permanent improvements, through the improved condition of the forest and the range, and through added safety from damage by fire.

The national forests should not only be so handled as to prove of permanent and increasing public benefit, but that they should pay all costs of their maintenance. If the Forest Service is permitted to pursue its avowed policy with reference to national forests and is given the funds urgently needed for its work, it will not only attain but it will much surpass, this result.

But it is necessary to face the fact squarely that the appropriations hitherto made for the national forests are barely sufficient to provide for their protection alone. They do not make provision for the proper handling of current business, and they entirely fail to take into account that this business is increasing. Last year so great were the demands upon the time of the forest rangers to handle the business of the people upon national forests that only about one-fifth of their time could be devoted to fire patrol.

The force upon national forests, never adequate for fire patrol alone, not only has to protect the forests but to handle a business which, in the aggregate, has increased several times faster than the force available. In the year 1908 the business of the national forests, as shown by the actual number of permits granted, was about five times the business transacted in 1905. But the force which handled this business in 1908 was less than two and one-half times the force which handled one-fifth as much business in 1905. Not only the business but the area which each forest officer must cover has increased, until now the average area in charge of a ranger is about 125,000 acres, or nearly 200 square miles. To handle grazing, timber sales, and other uses of various kinds on an area of this size in rough mountain country, and also to protect it from forest fire, is much more than one man can do effectively. Not to increase the force means inevitably to increase the already excessive burden upon the ranger, because the demands upon him by the people who wish to use the national forests are steadily growing larger.

Should the funds needed by the Forest Service to protect the national forests and to supervise their legitimate use not be made available, this service faces these alternatives: To reduce a forest-fire patrol, already insufficient, to the point of grave danger; or to limit the growing use of the national forests by the people. Under such circumstances, the proper course for the Forest Service to pursue would be to limit the use, rather than to endanger the forests themselves. This would necessarily mean that much timber which is ripe for the ax and for use by the people could not be sold; that grazing would have to

be limited correspondingly; and that in other important respects the forests, beyond the point to which they could be safely guarded by the funds available, would have to be locked up against use by the people.

EXPENDITURES AND RETURNS.

2. IN FOREST STUDIES.

Since the Forest Service took charge of the national forests in 1905, it has expended $1,175,000 in studies to bring about a more conservative use of forest products and of forests in private and state ownership.

In considering the need for the continuance and extension of this work, a brief summary of how this Nation stands with relation to the forests is of value.

Four-fifths of the forests of the United States are in private hands. From these forests the timber supply of the future must mainly come. At present less than 1 per cent of the forests privately owned are logged conservatively or adequately protected from fire.

The growth of timber in all the forests of the United States approximates 7,000,000,000 cubic feet per year. But this Nation is using 23,000,000,000 cubic feet of timber per year, or nearly three times as much as all our forests produce.

Since 1870, forest fires have annually cost an average of 50 lives and not less than $50,000,000 worth of timber. They have burned over at least 50,000,000 acres of forest each year. Through destructive logging, one-fourth of the timber which might be utilized is wasted. The waste in the mill is from one-third to two-thirds of the lumber sawed. These wastes combined mean that for each 1,000 feet of timber which stood in the forest, about 320 feet, or less than one-third, is actually used. The remaining two-thirds are wasted.

We can not count upon other countries to supply our need when our own forests are gone. The condition of the world supply of timber makes us already practically dependent upon what we produce. We send wood out of our country and we bring it in, but we export one and one-half times as much as we import. From this time on we must grow our own wood supply or we must do without.

These central facts have recently been compiled by the National Conservation Commission. They are not hysterical statements based on guesswork, but conservative estimates, backed by reliable data. It is much more probable that they understate than that they overstate the actual condition.

These facts mean that we must act vigorously if our forests are to be preserved. Even the most vigorous action will not prevent grave timber scarcity, which our waste of the forest has made inevitable. But if we fail to act, we shall face not merely timber scarcity, but timber famine.

Realizing these facts, the Forest Service has felt that its duty to promote the conservative use of forests not in federal hands, as well as all economy practicable in the use of forest products, is no less urgent than its duty to rightly administer the national forests. To this end the Forest Service is doing all it can with the funds available to teach American citizens how to practice forestry. It has carried forward a national campaign of education in forestry by spreading broadcast the useful knowledge obtained by its forest studies, in actual cooperation with States as well as with the individual forest owner and user in the handling of his timber tract, his wood lot, his forest plantation, and his timber-treating plant.

The results of this work, so far as they can actually be measured in dollars, are worth to this Nation many times the amount expended in obtaining them. But an even greater accomplishment is the awakening of the American people to their national and individual need for forest conservation. We are still far behind all other great nations in our treatment of the forest. But no nation possesses a more wholesome public sentiment upon which to build a structure of forest conservation which will endure than does our own.

In the period and for the expenditure specified, the Forest Service has, in cooperation with private owners, made detailed working plans for the conservative handling of nearly 6,000,000 acres of private forest land. It has prepared 114 planting plans for settlers and small farmers, especially in the Middle West. Through its timber tests, which are now accepted by engineers, architects, and builders as the standard timber tests in the United States, it has promoted economy in the use of structural timbers and greatly increased the range of species used for this purpose, thereby decreasing the drain upon our forests. Chiefly as the result of educational work done by the Forest Service as to creosoting and other useful methods of wood preservation about 60 timber-treating plants are now in successful operation in the United States, which turn out 1,250,000,000 feet of treated timber annually. The increased life given to timber in use through preservative treatment would mean, if all timber which could profitably be treated were treated, an annual saving of about $72,000,000 a year. The Forest Service answers about 140 inquiries a week for practical advice in timber preservation alone.

Through its studies of wood utilization the Forest Service is pointing out practical economies in the sawmill, in the factory, and in the use of timber itself, which have had a material effect in reducing these great forms of waste.

These are a few examples only of the direct results from the studies conducted by the Forest Service. The range of its usefulness in answering requests for advice regarding the best use of forests and forest products in every field is indicated by the fact that these requests average 100 a day.

Since 1905 the Forest Service has distributed over seven and one-half million publications containing useful information in the field of practical forestry.

In its work with States the Forest Service has put into actual effect the principle of cooperation between State and Nation, upon which the effective solution of our national forest problem directly depends. It has completed cooperative studies with 13 States, and cooperation with as many more is either in operation or directly pending.

The results of this state cooperative work have been far-reaching. The admirable forest law of California is the direct result of a study of state forest conditions made by the Forest Service, one-half the cost of which was borne by the service and half by California.

Through a study made by the Forest Service, Alabama has enacted advanced conservative forest legislation.

Illinois has profited greatly through the information furnished by the Forest Service on the care of the wood lot and on forest planting.

The service has for two years been making a state forest study in cooperation with Kentucky. The result will be to improve logging methods, bring about more accurate knowledge as to timber values, and lead the farmers and other owners of timber land to take better care of their holdings.

In Michigan an examination of a portion of the State has been made, particular attention being paid to forest fires. This has led to important pending state legislation in regard to the control and prevention of forest fires.

In Delaware a study of forest conditions was made with special reference to the advisability of growing loblolly pine.

In Maine and Florida forest fires were studied, with a view to shaping legislation for their control. These studies have already borne fruit in better legislation.

In Maryland five counties were studied, and the facts ascertained in these counties led to the appointment of a state forester and to much better care of forests within the State.

In Mississippi a cooperative study was made of cut-over longleaf pine lands. This resulted in the gathering of much useful information and called to the attention of the state legislature the need for forest legislation along various lines.

In Missouri a detailed study of forest conditions in the Ozarks awakened a keen interest in forestry in the State, which promises splendid results.

In New Hampshire two studies have been made, one of forest conditions, the other of forest taxation, which have had admirable results.

A bill is pending in the West Virginia legislature providing for a study of its forests by the State and the Forest Service.

Forest conditions in Wisconsin have been studied by the service, with the result that a state forester has been appointed, and Wisconsin stands now probably at the head of States in the care of its forests.

To sum up, the studies made by the Forest Service, both independently and in cooperation with States and with individuals, and the wide distribution of their results, have been and are the prevailing influence in the United States for the better use of the forest and its products. Of the two great tasks before the service—the administration of the national forests and popular education in forestry—the one is quite as important as the other. It is no less necessary to the future of our forests that right use of the four-fifths of them which are in private hands be encouraged than of the one-fifth which is in the hands of the Government.

TIMBER SALES.

The receipts last year from the sale of timber on national forests were about $850,000. Had the Forest Service sold all the timber it was asked to sell, it would have sold about ten times as much. Had it made these sales, the receipts from them alone would have covered the total expenditure of the Forest Service for the year and put a net balance of over $5,000,000 into the United States Treasury.

It costs the Forest Service from 20 to 30 cents per thousand feet of timber sold to mark the trees to be cut, to supervise the logging, and to burn the brush as a precaution against fire.

This expenditure is necessary to insure clean work in the woods and the production of a good second crop.

The reason why the service did not sell more timber last year, and thereby much more than pay back the total cost of all its work, is that it did not have the money needed to safeguard the forest in logging. The Forest Service therefore confined its timber sales strictly to the number which it could handle properly with the funds available. It would have been very easy for the Forest Service, at the expense of the national forests with whose welfare it is intrusted, to have shown a large credit balance at the expense of the forests themselves. This it has declined to do.

During the past year the Forest Service gave timber to settlers in small quantities for domestic use to the total value of $169,000. This is in pursuance of the policy of the service to give all aid practicable to the small man within and near the national forests who is trying to establish a home. This free use of timber by settlers involves certain necessary expenses in supervision by the Forest Service, from which, of course, there is no direct return.

The national forests contain over 400,000,000,000 feet of timber, which is one-fifth of all timber standing in the United States. They contain, also, vast quantities of wood suitable for posts, poles, and fuel. Handled on a strictly commercial basis, the timber alone in the national forests could be made an important source of money revenue to the Government. Handled as the Forest Service is handling them, with a view to reasonable money returns, but also with a view to making them of direct public benefit in the development of the West, the national forests will easily pay back all costs of their administration and protection. Thus far the Forest Service has not been given an opportunity to make the national forests pay their costs, because the funds provided have never been sufficient for the adequate protection of the national forests. And the Forest Service has steadily refused, and rightly so, to devote money needed for fire patrol to increasing current business at great risk to the safety of the national forests themselves.

FOREST FIRES.

For the last thirty years forest fires have destroyed annually in the United States an average of 50 lives and $50,000,000 worth of timber. The area burned over each year has averaged not less than 50,000,000 acres.

For the last year, the most calamitous year as to forest fires that this country has known for a decade, the total damage by forest fires in the United States has been conservatively estimated at not less than $100,000,000.

Through its fire patrol on national forests the Forest Service saved last year, compared with the actual fire damage on private forest lands of similar area, over $34,000,000, or enough to pay all the expenditures of the service, at last year's rate, for about ten years.

The force employed upon fire patrol through which the above result was obtained was equivalent to one man to each 500,000 acres, an area half the size of the State of Delaware. The public expenditure was about one-third of a cent per acre. The result was the protection of timber worth seldom less than $75 per acre, and frequently as high as $100 and even $200 per acre. This is fire insurance at an average rate of one three-hundredths of 1 per cent.

The national forests contain one-fifth of the standing timber and one-fifth of the forest area of the United States. In West Virginia, whose forests comprise one-sixteenth of the area of the national forests, the damage by fire was five times as great; in Wisconsin, whose forests comprise one-fourth of the area of the national forests, the damage by fire was nine times as great; in the Adirondack region of New York, whose area is about one one-hundredth of the national forests, the damage by fire was equally great.

The expenditure for fire patrol per acre on national forests is far below the amount actually expended by the lumbermen associated together for fire protection in the States of Washington and of Idaho. The Washington Forest Fire Association, organized by private owners of timber land to protect their holdings from fire, has a membership of 138, and comprises a total acreage of nearly 3,000,000 acres. This association expended 1 cent per acre in the protection of the forests of its members from fire in 1908, or three times as much as the Government expended in the protection of the property of the people in national forests.

The national forests, with the safeguarding of which the Forest Service is charged, are worth about $2,000,000,000, which is more than the total value of the equipment of the army and navy combined.

The commercial timber alone in national forests is worth $1,000,000,000, or equivalent in value to seven such fleets as the one which has just carried the American flag around the world. The preservation of this vast natural resource is no less essential to our national prosperity and industry than is the fleet to the maintenance of our independence as a nation.

The force upon national forests is called upon to protect the forests from fire and to handle at the same time a rapidly increasing business with the people. One hundred thousand persons used the national forests under permit last year. In the not far distant future this number should be increased to one million. It is unjust and unwise to require the Forest Service to give adequate protection to the national forests for one-third the amount which private owners are expending in the protection of their timber lands and at the same time to extend and to expect this force to handle a business already vast and rapidly growing.

The fire-patrol force has been inadequate for safety since the beginning through lack of funds. Congress has assumed that the increased appropriation asked by the Forest Service is due only to increasing business. It is due mainly to the desire of this service to effectively safeguard the national forests from fire.

Unless the force on national forests is greatly increased—and that necessarily carries with it an increase in appropriation—the Forest Service must do one of these two things—turn away national forest business or reduce a fire patrol already insufficient. This is an urgent and immediate condition, not a theory. [Applause.]

GRAZING.

The regulation by the Forest Service of grazing upon ranges within the national forests has in three years reduced the waste of forage at least 30 per cent. This means that the number of sheep and cattle fed upon these ranges is increasing in proportion.

Through the control of these ranges by the Forest Service steers grazed in many of the national forests last year weighed from 50 to 100 pounds more than steers grazed on outside ranges, and brought from $5 to $10 per head more on the open market. The same is true of lambs and sheep. The natural increase in calves and lambs from stock ranged on national forests is from 10 to 20 per cent larger than from stock ranged outside national forests.

During the past year the killing of mountain lions, wolves, and other predatory animals within national forests by hunters employed by the Forest Service has saved the stockmen from losses, which, on the basis of actual past experience, would have considerably exceeded the amount paid by these stockmen in grazing fees.

The grazing fees charged on national forests are from 30 to 35 cents per head for cattle, and from 10 to 12 cents per head for sheep, for the entire year. These charges are far below those paid for similar grazing privileges outside the national forests. For example, on Indian reservations in Arizona and New Mexico a fee of $1 per head for cattle and 25 cents per head for sheep is paid, or two or three times as much as the fees on national forests.

Large tracts of grazing lands in southern Colorado owned by the Ben Butler estate are leased at a rate equivalent to from $1.25 to $1.75 per head for cattle, or from three to over four times the rate charged on adjoining national forests. Lands owned by the Southern Pacific Railway Company within the boundaries of the Tahoe National Forest are leased for grazing at a rate equivalent to about 25 cents per head for sheep, or nearly four times as much as is paid for grazing on public lands in the same forests. On Indian reservations in Oregon and Washington a charge of $1.50 per head is made for cattle and 25 cents per head for sheep. On adjoining national forests the charge is from one-half to one-third as much.

The above figures show that the Forest Service in its administration of ranges within national forests is giving for fees which run from one-half to one-fourth the actual value of the grazing privileges effective protection of the range, increasing safety from predatory animals, and a product in beef and mutton worth considerably more on the market than the product of outside ranges.

Had the Forest Service charged last year for grazing privileges what they were actually worth these charges would have more than paid all the expenditures of the service for the current year. That the service did not increase grazing fees is due directly to its conviction that the great value of its administration of grazing is to aid the small man in establishing a home, and that the transition from free range to grazing fees should give opportunity for the easiest adjustment practicable of the stock industry to the new condition. Had not this opportunity been given, the transition would have meant inevitable hardship, especially to the small stockman.

CONCLUSIONS.

The funds recommended are needed for the government forest work for these main reasons:

1. The protective force on national forests has been inadequate from the beginning, and the increase in it has not kept pace with the increase in business.

2. Unless the force is greatly increased the Forest Service must do one of these two things: Turn away national forest business or reduce a fire patrol already insufficient. This is an urgent immediate condition, not a theory.

3. It is no less necessary for the better protection and fuller use of the national forests that money is provided with which to hire men than that money is provided with which to build trails, telephone lines, fences, and other permanent improvements. Without the men, the permanent improvements are of little use; without the permanent improvements, the efficiency of the additional men will be greatly reduced. Both are essential.

4. The fact that the protective force on national forests has carried a heavier load of current business per man during the last year than ever before and has held the fire damage down to 1 per cent of that on private forest lands is creditable in the highest degree. But it is unfair, as well as unsafe to the forests, to rely upon the men keeping this up. The force is at present seriously overworked, and unless it is increased the inevitable result will ensue—a serious falling off in individual efficiency.

The estimates for the ensuing fiscal year are the first estimates presented for the Forest Service, which, if granted, would put it really abreast of its task. If it is necessary that the increased expenditures proposed should be met by increased returns, that can be done; if it is necessary that they should be materially exceeded by the returns, that can also be done, although neither is advisable. The growth of business on national forests can go on until the returns greatly exceed the expenditures with absolute safety to the forests themselves, provided that the growth does not get beyond the trained force available to handle it. What the Forest Service is doing now is to train up the force, get ready for the business, and take care of the increase so far as it can. When the force is once adequate in training and in number, the service can take care of all the business, which means many times that now handled with a revenue many times as great. [Applause.]

During the delivery of the above,

The CHAIRMAN. The time of the gentleman from West Virginia has expired.

Mr. STURGISS. Mr. Chairman, I ask leave to extend my remarks in the RECORD.

The CHAIRMAN. The gentleman from West Virginia asks unanimous consent to extend his remarks in the RECORD. Is there objection. [After a pause.] The Chair hears none, and it is so ordered.

Mr. SCOTT. Mr. Chairman, I yield fifteen minutes to the gentleman from Washington [Mr. HUMPHREY].

Mr. HUMPHREY of Washington. Mr. Chairman, no question to-day is attracting greater popular attention than the conservation of our natural resources, and the resource probably attracting most attention to-day is that of our forests. For many reasons their conservation is urged. I have just listened with pleasure to the very able address of the gentleman from West Virginia [Mr. STURGISS] in regard to the work of the Forestry Service. With the general policy of conserving our natural resources, and especially of our forests, I am in most hearty sympathy and accord; but I do not agree with all the reasons given therefor. Among other reasons urged for the protection of our forests by many is the advantage that forests are supposed to be in the protection of stream flow. Some of the advocates have linked forest protection with the improvement and protection of our inland waterways. As the Government is now being urged to buy large tracts for the purpose of protecting the forests and thereby, it is asserted, aiding navigation, it becomes of vital importance to us as a legislative body to ascertain what effect, if any, forests do have upon stream flow.

There has been a vast amount of literature written and distributed upon this question. While much of it has been valuable, some of it has been worthless, and much of it misleading. The public has generally come to accept as undisputed facts that forests have the following effect upon stream flow:

First. By acting as natural reservoirs they prevent both floods and extremely low water.

Second. That they increase precipitation.

Third. That they prevent erosion of the soil and thereby protect water courses, canals, and reservoirs from accumulation of silt. It is at least open to question whether or not forests have any such results. That such theory has found general public acceptance demonstrates that constant reiteration is often received as proof. Some of the ablest engineers in this country and in Europe contend that forests have no such effect. In fact, I think I am well within the truth when I say that few engineers of recognized ability agree with the generally accepted theory of the influence of forests in preventing floods, in preventing erosion of the soil, or in being an aid in maintaining the navigability of rivers; or, in other words, those best qualified to know dispute the popular opinion upon each of these propositions.

To-day almost every paper or magazine you examine contains an article on the direful effects the removal of our forests are having upon every conceivable condition which affects humanity, and especially is this true in relation to the rainfall, climate, and stream flow. Generally, no facts are given. The only proofs usually offered are a series of statements of woeful calamities often accompanied by photographs illustrating the awful results and ending by appealing to Congress to appropriate a few hundred millions of dollars to reforest some worthless hills to stop this terrible devastation. The appeal is always to the Government and not to those that would be directly benefited. About the only calamity that has afflicted us that has not been placed to the destruction of our forests by a certain class of enthusiasts are the recent earthquakes, but here there are extenuating circumstances in this regrettable oversight—the time has been short and the opportunity limited.

It is of vital importance that we should know the facts, as a bill has been reported from the Committee on Agriculture for an appropriation for the purchase of lands to be reforested for the express purpose of improving the navigability of streams. I may add that the main inspiration in drawing the bill upon this theory was to escape certain inconvenient constitutional objections to buying the lands for the purpose alone of reforesting them. In other words, the "navigability of streams" has been injected so that the burden may be placed upon the Nation at large instead of upon the States to be benefited. This bill in its ingenuity, if not in its justice, commands my admiration. It proposes to take the money from the sale of timber in the national forest reservations in the West and buy back lands once owned and sold by certain States in the East and South. By this bill the old riddle, "how to eat your cake and save it," has been solved. Certain States have sold, used, and enjoyed their public lands and they are not now contented in depriving the Western States of their lands, but they want to take the money from the sale of the products on these lands and buy their own back again. And they are asking that this be done upon a theory that is not supported by facts. If these barren hills should be reforested, then the States that once owned them, sold them, and will be benefited by their reforestation—if any benefit should come thereby—should pay the expense. Upon what theory can it be claimed that the Western States, which have already been deprived of a large portion of their public lands for the benefit of the entire Nation, should furnish the money to do it?

We of the West are more than willing that our public lands should be reserved for the benefit of the entire Nation, but we do not think that the products of these reservations should be taken and used to buy back public lands for some of the improvident States of the East and South. What justification can there be in such action? Change the old proverb that "might makes right" to "votes make the law," and you have the only answer.

Upon this important question what those who make the laws of this country desire is the truth. If the generally accepted theories upon this question are wrong, then we should know it. We should protect our forests, but it should not be done under misapprehension or false pretenses. If forests do not have a beneficial effect upon the stream flow, then this consideration should be eliminated when considering legislation to preserve them. In other words, however important may be the protection of our forests, we do not want to be influenced in legislation in reference to them by any false theory, even if it does have back of it popular belief.

Col. H. M. Chittenden, of Seattle, has written a carefully prepared article, showing great research and learning, by which he controverts much of the generally accepted theory upon this important subject. His article is calm, dispassionate, and scholarly, and it is evident in every line that his sole object is to present the facts. He is an engineer of great experience, a scholar of wide learning, and a clear and forceful writer. The opinion of no other man in America is entitled to greater weight on this question than his. His article should be read by every Member of this House, regardless of what opinion he may now hold upon this important question.

I therefore ask to extend my remarks by having printed in the RECORD the article referred to written by Colonel Chittenden.

I am satisfied that any unprejudiced man that will read it will be forced to the conclusion that forests do not, to any appreciable extent, tend to prevent floods or extreme low water in our rivers; that they do not have a beneficial effect upon the navigability of streams; that they do not increase precipitation nor prevent erosion; and that he will become convinced that this Nation is being asked to spend millions upon a theory that is not supported by the facts. [Applause.]

Mr. Chairman, I ask unanimous consent to extend my remarks in the RECORD by appending an article by H. M. Chittenden, on "Forests and reservoirs in their relation to stream flow, with particular reference to navigable rivers," delivered before the American Society of Civil Engineers.

The CHAIRMAN. The gentleman from Washington asks unanimous consent to extend his remarks in the RECORD in the manner indicated. Is there objection? [After a pause.] The Chair hears none.

The article is as follows:

AMERICAN SOCIETY OF CIVIL ENGINEERS. PAPERS AND DISCUSSIONS.

[This society is not responsible, as a body, for the facts and opinions advanced in any of its publications.]

FORESTS AND RESERVOIRS IN THEIR RELATION TO STREAM FLOW, WITH PARTICULAR REFERENCE TO NAVIGABLE RIVERS.

[By H. M. Chittenden,[a] member Am. Soc. C. E. To be presented November 4, 1908.]

NOTE.—These papers are issued before the date set for presentation and discussion. Correspondence is invited from those who can not be present at the meeting, and may be sent by mail to the secretary. Discussion, either oral or written, will be published in a subsequent number of Proceedings, and, when finally closed, the paper, with discussion in full, will be published in Transactions.

The following paper is presented at this time with the purpose of eliciting from the society membership the results of observation and experience touching the important matters of which it treats. They are vital features of one of the chief living questions before the public to-day, and an expression of views by men accustomed to look at things from a practical standpoint can not fail to be of great value to our legislators upon whom the ultimate responsibility for action must rest.

While the author's views traverse, to some extent, currently accepted theories, they are based upon long observation and study and are what seem to be unavoidable conclusions therefrom; but he is committed to no theory, as such, and his mind is entirely open to conviction upon any point in which his opinions may be shown to be erroneous. His sympathies are wholly on the side of the present movement for the conservation of our natural resources, and, so far as this paper takes issue with certain tendencies of that movement, it is only for the purpose of inquiring whether such tendencies are not really inimical to the cause to which they pertain.

With this preliminary statement the author will take up the first part of his paper, viz, the influence of forests upon steam flow.

FORESTS AND STREAM FLOW.

The commonly accepted opinion is that forests have a beneficial influence on stream flow:

1. By storing the waters from rain and melting snow in the bed of humus that develops under forest cover, preventing their rapid rush to the streams and paying them out gradually afterwards, thus acting as true reservoirs in equalizing the run-off.

2. By retarding the snow-melting in the spring and prolonging the run-off from that source.

3. By increasing precipitation.

4. By preventing erosion of the soil on steep slopes and thereby protecting water courses, canals, reservoirs, and similar works from accumulations of silt.

There are many subsidiary influences, but, broadly stated, the above propositions cover the ground. They were first given general currency nearly forty years ago through the writings of Sir Gustav Wex, chief engineer on the improvement of the Danube, whose treatise was translated into English by the late General Weitzel, of the Corps of Engineers. Wex's theories were stoutly resisted at the time by many European engineers, and still find only a limited acceptance in the profession,[b] though in the popular mind they have gained ground and in the United States are now accepted practically without question.

To establish by definite proof the truth or falsity of these propositions is an extremely difficult task. One would not think so, indeed, to judge from the cheerful confidence with which the popular thought accepts them; but it is nevertheless so. The elements of the problem are so many and conflicting, the necessary evidence is so hard to get, and comparative records are of such recent date, that precise demonstration is scarcely possible. The popular belief is based upon a fact and an assumption forming together a basis for a conclusion. The fact is that forests in the eastern portion of the United States have disappeared to a large extent within the past century. The assumption is that floods and low waters in the same region are more frequent and severe than before the forests were cleared away. The conclusion is that these assumed conditions must be due to the disappearance of the forests. Post hoc, ergo propter hoc is the argumentative process relied upon, and little effort is made to consider whether there may not be some other and more satisfactory explanation. The author will attempt to analyze the problem from a theoretical standpoint and will then cite existing records so far as these are sufficiently long-continued to be worth anything. He will consider, first, the effect of the forests where stream flow results from rain alone, and, next, where it results in part from melting snow.

EFFECT OF FORESTS UPON THE RUN-OFF FROM RAINFALL.

The first of the above propositions—the retentive action of the forest bed—may be accepted at once as strictly true for average conditions. It is not true for extreme conditions—great floods and excessive low waters—the conditions that determine the character and cost of river control. Consider an inclined-plane surface, practically impervious to water, with a layer of sand covering some small portion of it, and let a uniform spray of water be applied to the entire surface. Assume that the temperature and rate of evaporation are relatively low. As soon as the spray begins, water commences to flow from the uncovered surface, but not for a time from that covered by the sand. After a while it begins to trickle from the sand, increasing in volume until the sand is thoroughly saturated, after which it flows off in as great quantity per unit area as from the uncovered portion. If the spray is stopped, the water immediately ceases to flow from the uncovered area, but continues in diminishing quantity from the covered area until it finally ceases altogether; but not all the water that fell on this area has run away. The sand has retained some portion of it and given it off in evaporation, so that the total run-off per unit area is somewhat less than on the uncovered portion. If the shower be long-continued and the rate of evaporation very low, the difference of total run-off per unit area from the two surfaces will be very slight.

Suppose now that the temperature and rate of evaporation are high and that the spray works intermittently. If the showers are small in volume and the intervals between them long, the sand may retain nearly or quite all of the individual showers and give them off in evaporation, so that there will be no run-off whatever.

Between these two extreme conditions the covered area will exert a greater or smaller regulative effect upon the run-off. The retentive power of the sand will be less as the slope of the surface upon which it rests increases, or it will be greatest when the surface is nearly horizontal and least when it is nearly vertical.[a]

Now, in nature this ideal illustration is never fully exemplified in the cleared land and the forest. There is nearly everywhere a marked retentive capacity in the bare soil. In newly plowed ground it is probably greater than in the forest. Moreover, certain crops, like heavy grass or grain, obstruct the flow of water almost as much as the forest cover. On the other hand, the furrows of cultivated fields, drainage ditches, roads, and, particularly, the pavements and roofs of towns, greatly accelerate the run-off; so that, while the full contrast of the ideal example does not exist in nature, the principle of the illustration applies perfectly. That is, there are times when the per-

[a] Lieutenant-colonel, Corps of Engineers, U. S. Army.

[b] Almost simultaneously with the publication of Wex's treatise a similar work was published in France by M. F. Vallée taking exactly the opposite view of the question.

[a] Since the above was written the author has noticed, in the report of the hearing on House resolution 208 before the Committee on the Judiciary, that Gifford Pinchot, Association American Society Civil Engineers, Chief of the Forest Service, used an illustration very similar to that given above, except that he failed to carry it to its logical conclusion. Addressing the committee, February 27, 1908, he said: "I have in my hand here a photograph of a denuded hillside. After the forest has been removed rain falls on that hillside and runs off rapidly, as the water I drop upon the photograph does now, and disappears instantly [illustrating]. If, on the other hand, I place a forest cover on the hillside, that is exactly analogous in texture and effect with this piece of blotting paper, and drop the water slowly upon it, we would find that, instead of running off slowly at the bottom, the water is held [illustrating with blotting paper]. Part of it runs off, but, as soon as the absorbent quality of the paper or the forest floor has time to take effect, the water is kept and drips gradually for a considerable length of time off the hill into the stream. This is an exact illustration of the way in which the forest controls the stream flow on that hillside."

Mr. Pinchot should have completed his illustration. He should have continued to sprinkle the paper long enough and heavily enough to have saturated the paper completely in order to show that the water would then flow from the paper as rapidly as from the uncovered area; and he should then have explained that this condition represents what always happens in the forest in times of great flood. Then he should have sprinkled the paper intermittently in small quantities, and at such long intervals that the warm air of the room would evaporate all of the absorbed water, and that none whatever would flow away. He should then have explained that this condition represents what always takes place in the forest in times of great drought.

centage of retention in the forest bed is 0, and there are other times when it is 100; or, there are times when so much water comes that the forest bed can hold none of it and there are times when so little comes that it holds it all. Between these extremes there are periods when it holds more or less and gives up less or more and exercises a corresponding influence upon the run-off. There is another important condition not exemplified in the illustration, and that is that the forest areas are scattered everywhere, the ground has an infinite variety of slope, the showers never fall uniformly over an entire watershed, and the final result in the total run-off is the summation of thousands of tributary results.

It is true, therefore, as popularly understood, that, in periods of ordinary rainfall with sufficient intervals for the forest bed to dry out somewhat, forests do exert a regulative effect upon run-off. They modify freshets and torrents and prolong the run-off after storms have passed, and thus realize in greater or less perfection the commonly accepted theory.

This result utterly fails, however, in those periods of long-continued, widespread, and heavy precipitation, which alone cause great floods in the large rivers. At such times the forest bed becomes completely saturated, its storage capacity exhausted, and it has no more power to restrain floods than the open country itself. Moreover, the fact that the forest bed has retained a portion of earlier rainfall and is yielding it up later to the streams, produces a condition that may be worse than it would be in a country cleared of forests. Really great floods in large rivers are always, as is well known, the result of combinations from the various tributaries. It is when the floods from these tributaries arrive simultaneously at a common point that calamitous results follow. Any cause which facilitates such combinations is therefore a source of danger. Now, unquestionably, in a heavily wooded watershed forests do have a tendency in this direction. When a period of heavy storms occurs, spreading over a great area, continually increasing in intensity, the forests, by retaining some portion of the earlier showers and paying them out afterwards, do produce a general high condition of the river which may greatly aggravate a sudden flood arising later from some portion of the watershed. That the forest does promote tributary combinations, there would seem to be no question, and that it may therefore aggravate flood conditions necessarily follows. It is not contended that this increase is ever very great, but it is contended that forests never diminish great floods and that they probably do increase them somewhat. The forests are virtually automatic reservoirs, not subject to intelligent control, and act just as the system of reservoirs once proposed by the French Government for the control of floods in the River Rhone would have acted if built. These reservoirs were to have open outlets, not capable of being closed, which were intended to restrain only a portion of the flow. A careful study of their operation in certain recorded floods showed that they would actually have produced combinations more dangerous than would have occurred without them.

Consider now periods of extreme drought and grant that, as a general rule, springs and little streams dry up more completely than when forests covered the country, although this difference is very greatly exaggerated in the popular mind.[a] At first thought one would conclude that, since the springs and streams make up the rivers, these also ought now to show a smaller low-water flow than formerly. This, however, is not the case. The difference between the former low-water flow of a spring or rivulet and what it is now is relatively an insignificant quantity. Most of such water sources yield but a small fraction of a cubic foot per second. Whether these small quantities are a trifle more or less cuts very little figure in the aggregate; and so it counts but little in the flow of a great river whether some of its extreme sources lose a portion of a volume that is already inappreciable. When the summer showers come, however, there is a marked difference. At such times the forests not only hold the water back—they often swallow it completely. Small showers that make a perceptible run-off in the open are often practically all absorbed in the leaves of the trees. Heavier showers that make freshets in the open are largely absorbed in the leaves and forest bed and pass off in evaporation; so that, contrary to the general view, the evaporation from the forest is greater at such times than in the open country and the run-off from summer precipitation is less.

[a] The term "as a general rule" is used, for it is by no means absolute. In particular the drainage of low swamp lands leads off into the streams in dry weather, waters that formerly remained or passed off in evaporation, and in such cases even the low-water flow is greater than it used to be. In 1895 the author saw an example of this on the Scioto River near the outlet of the great Scioto swamp which had recently been drained. A small mill was able to operate during the low-water season more regularly than formerly. Tile drainage, now so widely used, has the same tendency.

A single shower may produce a sufficiently greater run-off in a deforested area to more than offset the diminished low-water flow for several weeks.[a] Now, on most of the smaller streams quantity of flow is a more important matter than natural uniformity of flow, particularly in the summer time. The day of the small mill, which was so dependent upon such uniformity, is past. The modern water power invariably seeks uniformity by artificial regulation, and the ups and downs of its sources of supply are abolished in its storage. Therefore it does not matter nearly as much that the run-off of the small streams be uniform as that it yield a good flow of water; and if forests diminish the total low-water supply, this fact more than offsets the gain in uniformity. Likewise the great rivers swallow up and equalize the small irregularities of their headwaters and actually experience a somewhat larger low-water flow than if their watersheds were still thickly forested. Thus, while forests may decrease somewhat the extreme range between maximum and minimum run-off on very small watersheds, they do not do so on great ones, which are combinations of very small ones. At the same time it seems certain that forests decrease somewhat the total run-off from watersheds, small or great.[b]

INFLUENCE OF FORESTS UPON SNOW MELTING.

The second proposition—that forests have a beneficial effect upon the run-off from snow melting—is quite as firmly fixed in the popular belief as that just considered, but has even less foundation in fact. It is a relation that can be definitely traced, and it can be demonstrated that the effect of forests upon the run-off from snow is invariably to increase its intensity. This results from two causes, one affecting the falling of the snow and the other its melting.

In the first place forests break the wind, prevent the formation of drifts, and distribute the snow in an even blanket over the ground. In the open country the snow is largely heaped into drifts, their size depending upon the configuration of the ground, the presence of wind-breaks, and the prevalence and force of the wind. These drifts form admirable reservoirs and in the high mountains are the most perfect known. Forests prevent their formation entirely.

The period of snow melting begins in the open country much earlier than in the forests. At first the melting is due mainly to the direct action of the sun's rays before there is sufficient warmth in the general atmosphere to produce any effect. The thinly covered areas melt off first and the streams experience a diurnal rise and fall following the warmth of day and the frost of night. Nothing like a flood ever arises from such melting.

Under forest cover this action is interfered with more or less, depending upon the density of the shade. Even after the ground in the open is entirely bare, except under the drifts, the forest areas may still be covered with an unbroken layer of snow. It is generally, though erroneously, considered that this delay is beneficial, by carrying further into the summer the release of the winter precipitation and giving it more time to soak into the ground; but, in fact, this benefit does not result. The water from the first melting of the snow blanket does not sink into the ground, but into itself. Snow is like a sponge. A panful will shrink to one-fourth of its volume, or less, before any free water appears. The author has seen an 8-foot covering of snow dwindle to 2 feet, with the ground beneath it still comparatively dry.

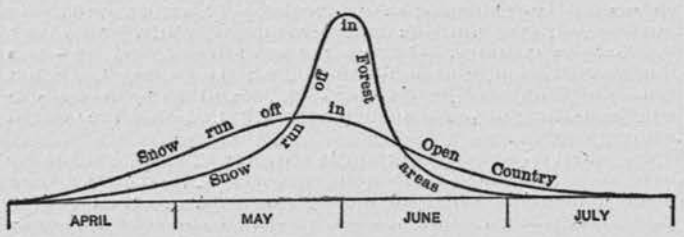
The forest shade thus holds the snow, which gradually becomes saturated from its own melting, until the heat and warm rains of late spring or early summer arrive, the soft air everywhere pervading the forest depths and finding a maximum exposure of surface to the melting influences. A cubic yard of snow which in a great drift might stand 27 feet deep with a square foot of exposure, may here lie with a depth of 1 foot and 27 square feet of exposure. The result is that when the final melting begins the whole body of snow disappears very rapidly, rushing from every direction into the streams, swelling them to their limit and often causing disastrous freshets. The active melting lasts but a short time, and there is little opportunity for the water to soak into the ground. The delay in melting, caused by the forest shade, has simply operated to concentrate it into a shorter period and increase the intensity of the resulting freshet. It comes so fast that the greater por-

[a] So far as the author is aware, Col. T. P. Roberts, of Pittsburg, Pa., was the first to call attention to this characteristic of stream flow.

[b] This subject was ably discussed by Mr. Raphael Zon, of the Forest Service, Department of Agriculture, in Transactions Am. Soc. C. E., Vol. LIX, pp. 494–495. He states among other things that "the quantity of water available for stream flow from forested watersheds, all other conditions being equal, is less than from nonforested watersheds;" that "the forest soil receives least precipitation, next comes meadow land, and, lastly, tilled land;" that "in the forest only the upper layer of the soil is moister than in the open, the lower layers being always drier." This discussion is well worth perusal.

tion of it can not be utilized at the time and is lost altogether, unless intercepted by reservoirs.

In the open country, on the other hand, the drifts last for weeks after the snow has entirely disappeared from the forest, and continue to yield a supply of water far into the summer. The period of active melting in the open may have lasted four months, that in the forest scarcely as many weeks. Figure 1



GRAPHIC ILLUSTRATION OF SNOW MELTING IN FORESTS AND OPEN COUNTRY, ROCKY MOUNTAIN REGION.

illustrates, in a general way, the processes just described. These curves apply more particularly to the forests of the Rocky Mountains, where the author has had exceptional opportunities for studying their action. In the northwest corner of Wyoming and contiguous portions of the adjoining States lies an elevated region of probably 20,000 square miles, which is the source of nearly all the great river systems of the West. It is a very remarkable region in this respect. Its average altitude is about 7,500 feet, and it is in large part covered with a dense evergreen forest. At the very summit of this elevated region is that singular section now visited annually by thousands of tourists—the Yellowstone Park. The opening of the tourist season in spring occurs just about the time of active snow melting, and the most onerous and difficult task of those in charge of the road system of the park is to get the roads into condition for the first travel. This frequently has to be done while the snow still lies deep on the ground. It was the repeated execution of this task that first drew the author's attention to the fact that, as a general rule, the floods of his region are forest floods, and that the same conditions of precipitation which force the forest streams out of their banks produce only moderate effects in the open. The traditional "June rise" comes mainly from the mountain forests.

The photographs presented herewith were taken about the middle of June in a year of heavy snowfall and only two days before the tourist season opened. Plate CVII, figure 1, shows an east and west road through a dense forest of lodgepole pine, at an altitude of 8,200 feet. It shows very effectively the deep, even blanket of snow everywhere covering the ground, except along a narrow strip at the roots of the trees on the north side of the road, where the sun had access through the opening in the tree tops caused by the 30-foot clearing for the roadway. Plate CVII, figure 2, taken practically at the same time, shows one of the great drifts in the open country, which it was impossible to avoid in locating the road.

At this time a period of very warm weather had set in, with frequent rains. Severe floods followed, which did great injury to the roads and bridges, not only in the mountains, but for a considerable distance below. Within two weeks the snow had practically disappeared in the forests, but in the open country the drifts continued until the middle of July, giving forth a continuous supply of water.

A most illuminating article, and one which everyone interested in the subject should read, was published in Science, for April 10, 1896. It gives the results of observations in the mountains of Nevada for over twenty-five years, during which "extensive tracts of timber" were cut off "to the very ground," and new growths had been well started. It was found that springs which were active after the land was cleared dried up when the new forest growth developed; "that the water supply from the mountains is greater and more permanent now than it was before the timber was cut off;" that freshets were no more "frequent or violent than before the trees were cut off;" and that "spring floods were less frequent." The greatly increased loss due to evaporation in the forest was pointed out. This results partly from the vast extent of surface on the ground exposed to the air and partly from exposure on the leaves and branches of the trees.

"The foliage on this class of trees being as heavy in winter as in summer, the branches catch an immense amount of the falling snow and hold it up in mid-air for both sun and air to work upon; and only those who have had experience of the absorbing power of the dry mountain air can form any idea of the loss from that source." Moreover, "the trees absorb from the soil quite as much water as would be evaporated by the action of the sun in the absence of the shade."

The writer states that "the strongest force at work to save our rivers is the drifting winds, which heap up the snow in great banks; and in this the trees are a constant obstacle." He declares that "close observers, after long years of study, have been led to believe that if there is any difference in the flow of streams and the size of springs before and after the trees are cut from above them, the balance is in the favor of the open country." [a]

In the current literature upon this subject one invariably encounters the same fallacious assumption that because the forests delay melting their action is therefore beneficial. The fact is entirely overlooked that delay means concentration and greater intensity of run-off, while the open country prolongs the melting and gives a more even distribution. If the true action of forests in this respect, however, is rarely recognized by public writers, it is recognized, though perhaps unconsciously, by those who are benefited by it. The monthly reports of the Weather Bureau in the Rocky Mountain region are instructive reading in this connection. The following are a few extracts from those sent in to the central office of the western Montana district at Helena:

"Where there is no timber to break the force of the winds solid drifts of considerable depth have collected." * * * "The snowfall has been very light, and the drifts are not large or solid enough to furnish an adequate flow of water in the streams." * * * "In some sections the winter's snowfall has been the lightest for many years, and as there is little likelihood that the later snows will form solid drifts, it is practically certain that the flow of water in most streams will be inadequate for irrigation and mining purposes."

These extracts, which could be multiplied indefinitely, show how well the practical ranchman understands the value of snowdrifts. It has always been a mystery to the author that writers will persist in statements like the following, which appears in one of the ablest addresses at the recent Conservation Conference in Washington:

"The possibility of irrigation depends largely on the preservation of the forest cover of the mountains, which catches and holds the melting snows, and thus forms the great storage reservoirs of nature."

The forests destroy the reservoirs, and the flow would be more uniform, prolonged, and plentiful if they were not there.

It will doubtless be urged that while the foregoing conclusions may hold for an elevated and densely wooded region, they will not hold for a lower altitude, warmer climate, and different kind of forest. In reply it may be said that in proportion as the conditions described prevail they apply everywhere. In deciduous forests, where the foliage is absent during seasons of snowfall and melting, the winds have greater play in winter and the sunlight in spring, and there is, of course, less difference between the forests and the open country; but while the difference is less, it is not obliterated altogether, and in hilly regions, like the Adirondacks and the White Mountains, it exists in full force. The author is very familiar with the region of western New York, having been reared on a farm nearly on the divide, between the waters of the Ohio and Lake Erie—a beautifully wooded country, deciduous growths prevailing, and one of the snowiest regions in the United States. While there is less drifting in the open and more in the woods than in high mountains, still it is strictly true that the open-country drifts outlast the forest snows just as the latter outlast the thin snows in the open.

A striking example of the action of forests on snow melting may be seen in the mountains of the Pacific coast. Here are the densest forests in the world, the deepest beds of humus, and the most perfect reservoir effect so long as it is in action. Yet in this very region, particularly around Puget Sound, are to be found some of the most torrential streams in the country. This fact is largely due to the distribution of snowfall caused by the forests. Conditions like the following are constantly developing. Heavy snowstorms sweep over the forest-covered mountains. The snow can not drift, for the dense woods break the wind. A great deal of it does not reach the ground at all, but hangs on the branches and undergrowth all the way from the highest tree tops down. This covering is often so dense as to prevent cruising operations altogether, because the cruisers

[a] The author recalls only a single other writer who has set forth this matter in accordance with the facts, and that was an anonymous correspondent in a recent issue of the Pacific Sportsman. His view of the case is summarized in rather terse language, as follows: "Trees in the mountains make floods in the spring. * * * Snow in the timber melts too fast. The timber keeps it from drifting. * * * The agency which maintains the river is the snow in the huge drifts. * * * That [the drift] is your reservoir that feeds the living streams of summer time. * * * The timber has nothing to do with the water supply, but is a result of the water supply."

can not see the timber through the impenetrable screen of snow. Of an 18-inch fall, perhaps 12 inches is on the trees and the rest spread evenly on the ground. To show what now happens, let an illustration be drawn from the opposite process of drying clothes. When the housewife has finished her washing and wishes to dry the clothes, she does not set them out in a basket, where it would take weeks for them to dry, but spreads them upon the ground or hangs them on a line, so that the sun and air can reach them on all sides. So these forests increase, by a thousandfold, the exposed area of the snow over what it would be if heaped in nature's clothes baskets (the great drifts), and give it the maximum possible exposure to the melting influences whenever these shall arrive. As a general rule these snowstorms are followed by warm southerly winds and rains—the rains frequently heavy in themselves—and rain and snow join hands, two storms in one, and rush down to the ocean in tremendous freshests and floods. The Skagit River, the largest in Washington except the Columbia, and a very considerable stream, has been known to rise 1 foot per hour for sixteen hours, and this where the stream has a fall of 4 feet to the mile and carries off its floods very rapidly. Plate CX, fig. 1, taken on another stream with only 480 square miles of watershed above it, shows the terrific power of these streams that come down from the most densely wooded and perfectly protected watershed in existence. The great flood of 1906 in this section was a perfect demonstration, not only of the vast intensifying effect of forests upon floods due to snow melting, but of the utter helplessness of the forest bed, when saturated with long rains, to restrain floods.

The same effect was very manifest in the great flood of 1907 in the valley of the Sacramento River, California. The tributaries on the east side come down from the densely wooded slopes of the Sierras; those on the west side from the bare or sparsely wooded slopes of the Coast Range. If the forest theory be true, these smooth western slopes should send down a greater flow for the same precipitation than the eastern slope. Exactly the reverse seems to have been the case. For the period, March 17–26, the precipitation on the Puta Creek watershed, on the west side (805 square miles), averaged 22.7 inches. The maximum resulting run-off per second per square mile for one day was 39.1 cubic feet. Directly across the valley on the Sierra slope, the precipitation on the American River watershed (2,000 square miles) averaged 14.6 inches for the same period, and the maximum daily discharge was 48.7 cubic feet per second per square mile. Considering the fact that unit run-off for the same conditions is always less the greater the watershed, this result is quite remarkable. It is undoubtedly due to the action of the Sierra forests on snow melting, and again illustrates the inability of forests to exercise any restraining influence upon great floods.[a]

During the spring of 1908 occurred a record-breaking flood in western Montana, nearly all the streams on both sides of the Continental Divide going far over their banks. As might have been predicted, this occurrence was promptly cited as another example of the effect that a forest-barren country has upon floods. Nevertheless it is as certain as anything of this kind can be that if the country affected by this extraordinary downpour (in some places breaking all previous records) had been thickly forested, and the ground still covered, as it would have been, with a solid layer of saturated snow, the flood would have far exceeded in magnitude and destructiveness that which actually took place.

Wherever forests existed in the higher altitudes they did have this effect.[b]

Having now considered the influence of forests upon stream flow from a theoretical standpoint, let the records themselves be examined as far as they are available. These records in the United States, unfortunately, are not so useful as might be wished, because of their brevity. No continuous records on any of our streams run back for more than eighty years, and most of them less than half as far. This is far short of the two hundred years considered by certain European engineers who investigated Wex's theories as the minimum period "necessary in order to draw a reliable conclusion" upon this subject. It does indeed seem absurd to take present-day records, as is constantly done, and draw conclusions one way or the other as to comparisons with the past, of which records are entirely wanting; but such as they are, a few of these records are given in Table 1. They include in most cases both high and low water, although the low-water records can not, in the nature of the case, be of very much value. Works of channel improvement on most of the streams have probably affected somewhat the low-water stages for the same discharge, while, as is well known, a given stage, even in a natural stream, does not mean the same discharge at different times.[a] It is really the discharge of the streams rather than the stage that forms the correct basis for comparison; but data for discharge are almost wholly wanting.

An examination of these records shows how utterly impossible it is to find anything in them to support the current theory of forest influence. They prove conclusively that there has been no marked change since the settlement of the country began, and that such change as there has been is on the side of higher high waters and lower low waters before the forests were cut off. What the record would be if we could go back two hundred years can not be said, but it may safely be conjectured that it would show both floods and low waters that would equal or surpass any modern record. It is the experience of every engineer who has the opportunity to observe the action and study the history of great rivers to find everywhere evidence of the occurrence of higher waters than any of which he has positive record. The up-building of bottom lands, the survival of old water marks, and many other indications, show that, great as are modern floods, those of the past were greater still. In the very nature of the case, it is not possible to find similar evidence of former low waters, because such evidence is wiped out by every succeeding high water; but whoever will take the trouble to study records of early expeditions on our rivers, when barges, keel boats, and similar craft were used, will conclude that extreme low water is not a modern development by any means. Measurements of the Monongahela River at Brownsville in 1838 and 1856, low-water years, gave discharges of 75 and 23 cubic feet per second, respectively.

It is quite certain that the river has not fallen so low in late years. At Pittsburg in 1895 (the dryest season in recent years) it fell to 160 feet.

TABLE 1.—*Gauge records of certain rivers of the United States.*

[Highest and lowest stages for each year.]

MISSISSIPPI.

Year.	St. Paul.		St. Louis.	
	Highest.	Lowest.	Highest.	Lowest.
1785	----------	----------	[b] 40.6	----------
1826	----------	----------	? 33.7	----------
1828	----------	----------	36.4	----------
1838	----------	----------	27.0	----------
1843	----------	----------	27.2	----------
1844	----------	----------	41.3	----------
1845	----------	----------	32.4	----------
1846	----------	----------	25.0	----------
1849	----------	----------	27.4	----------
1851	----------	----------	36.5	----------
1852	----------	----------	28.0	----------
1853	----------	----------	30.0	----------
1855	----------	----------	37.1	----------
1856	----------	----------	27.4	----------
1858	----------	----------	37.0	----------
1860	----------	----------	----------	0.6
1861	----------	----------	25.5	1.3
1862	----------	----------	31.5	3.5
1863	----------	----------	18.0	0.0
1864	----------	----------	20.3	1.2
1865	----------	----------	26.8	1.2
1866	----------	2.2	26.8	5.6
1867	----------	3.0	28.2	1.2
1868	----------	2.0	24.1	1.0
1869	16.1	2.8	29.2	4.7
1870	----------	----------	26.2	5.2
1871	----------	----------	21.8	2.8
1872	? 7.7	1.9	23.0	2.4
1873	16.4	2.4	25.5	4.6
1874	11.6	3.0	18.4	2.8
1875	18.0	2.1	30.0	2.3
1876	11.0	1.9	31.8	5.0
1877	7.7	1.8	26.5	7.0
1878	6.7	0.6	25.7	5.6
1879	10.8	0.9	21.2	3.4
1880	15.3	1.7	25.5	2.7
1881	19.7	3.3	33.6	7.6
1882	13.3	2.9	32.0	2.8
1883	12.5	1.5	34.8	4.5

[a] During the past twenty years the low-water stage of the Mississippi at St. Paul has been materially modified by reservoir action.

[b] L'année des grandes eaux.

[a] In the paper, "The Flood of March, 1907, in the Sacramento and San Joaquin River Basins, California," by Messrs. Clapp, Murphy, and Martin, published in Proceedings, American Society of Civil Engineers for February, 1908, the authors say: "In the Sierras the greater part of the precipitation is normally in the form of snow, and the magnitude of floods depends largely on the rate of melting. A heavy warm rain on deep, freshly fallen snow produces a maximum run-off."

[b] In the Weather Bureau report, Montana section, for June, 1908, it is stated that "the rainfall was phenomenally heavy over most of this district, and, combined with the water from the rapidly melting snow in the high mountains, caused unprecedented floods in nearly all streams.

TABLE 1.—*Gauge records of certain rivers of the United States*—Cont'd.

MISSISSIPPI—continued.

Year.	St. Paul.		St. Louis.	
	Highest.	Lowest.	Highest.	Lowest.
1884	10.3	1.8	28.1	3.0
1885	7.4	1.9	27.1	2.0
1886	8.2	1.2	27.0	1.4
1887	9.6	0.8	20.6	0.9
1888	14.4	2.4	29.4	3.2
1889	4.5	0.8	24.6	2.5
1890	7.0	0.6	20.5	2.8
1891	6.4	0.1	23.7	3.0
1892	12.6	1.0	36.0	1.0
1893	14.7	0.6	31.6	−0.2
1894	11.8	0.2	23.3	0.2
1895	4.6	0.2	23.4	−0.5
1896	10.7	0.9	27.7	3.7
1897	18.0	2.3	30.9	−0.5
1898	10.7	2.8	27.2	0.3
1899	11.0	2.4	25.7	−1.0
1900	6.6	0.7	23.5	−2.5
1901	7.5	1.2	22.5	−2.0
1902	7.5	1.1	26.8	−1.0
1903	13.5	2.5	38.0	0.6
1904	9.9	2.6	33.6	−0.1
1905	14.8	2.0	30.2	−0.3
1906	13.3	4.9	26.2	3.0
1907	13.6	1.3	----------	----------

OHIO.

Year.	Pittsburg.		Cincinnati.		Louisville.	
	Highest.	Lowest.	Highest.	Lowest.	Highest.	Lowest.
1810	32.0	----------	----------	----------	Upper.	Gauge.
1813	29.0	----------	----------	----------	----------	----------
1816	33.0	----------	----------	----------	----------	----------
1832	34.0	----------	64.2	----------	40.8	----------
1840	26.9	----------	----------	----------	----------	----------
1846	25.0	----------	----------	----------	----------	----------
1847	26.0	----------	63.6	----------	----------	----------
1848	23.0	----------	----------	----------	----------	----------
1851	30.9	----------	----------	----------	20.3	1.5
1852	31.9	----------	----------	----------	----------	----------
1853	31.9	----------	----------	----------	----------	----------
1855	18.0	2.1	----------	----------	----------	----------
1856	19.6	0.3	----------	----------	----------	1.1
1857	21.4	0.0	----------	----------	----------	----------
1858	26.0	0.5	43.1	2.5	19.1	1.5
1859	22.0	1.1	55.5	3.3	33.8	2.0
1860	29.7	2.8	49.2	5.3	----------	----------
1861	30.9	1.1	49.4	5.1	----------	----------
1862	30.0	0.3	57.3	2.3	----------	----------
1863	16.0	0.1	42.7	2.5	----------	----------
1864	18.6	1.0	45.1	3.1	----------	----------
1865	31.4	1.4	56.2	5.7	----------	----------
1866	15.4	0.4	42.5	4.7	18.6	2.8
1867	22.6	0.0	55.7	3.0	37.6	1.8
1868	20.6	0.0	48.2	5.1	22.3	3.0
1869	19.6	0.7	48.7	5.3	24.3	2.8
1870	18.0	1.3	55.2	3.8	----------	----------
1871	19.0	1.2	40.5	2.7	----------	----------
1872	20.6	1.6	41.7	3.0	21.0	2.0
1873	25.6	1.6	44.4	3.7	18.3	2.3
1874	22.4	1.1	47.9	2.3	22.4	1.8
1875	25.0	0.4	55.3	4.2	30.3	2.7
1876	26.0	0.2	51.7	6.2	32.5	3.7
1877	25.0	0.7	53.7	3.2	29.9	2.2
1878	24.6	0.0	41.3	4.3	15.7	2.9
1879	20.0	0.1	42.7	2.5	19.6	2.2
1880	22.0	0.3	53.1	3.7	30.0	2.8
1881	28.0	0.6	50.6	1.9	22.5	1.7
1882	21.9	0.6	58.6	6.1	37.4	4.7
1883	27.6	0.1	66.3	3.6	43.8	3.2
1884	34.4	0.3	71.0	2.7	46.7	2.0
1885	23.0	1.0	46.0	2.5	22.2	2.9
1886	22.8	0.3	55.7	3.3	32.7	2.4
1887	22.0	2.0	56.2	2.7	32.5	2.2
1888	26.0	0.0	39.9	5.2	16.1	3.6
1889	24.0	0.2	38.2	5.2	13.8	3.5
1890	24.3	1.2	59.2	5.7	35.3	3.6
1891	31.3	1.9	57.3	4.4	32.4	2.8
1892	23.0	1.3	43.7	3.4	21.9	2.1
1893	24.0	1.5	54.9	3.6	28.8	2.0
1894	23.2	2.0	35.6	3.1	12.8	2.2
1895	25.8	1.2	48.4	2.3	20.7	1.8
1896	23.0	2.0	47.8	5.5	22.4	3.9
1897	29.5	1.7	61.2	3.1	35.3	2.4
1898	28.9	2.2	61.4	4.5	36.3	3.1
1899	22.0	2.4	57.4	3.4	32.8	2.2
1900	27.7	1.6	40.0	3.2	15.4	2.0
1901	27.5	0.8	58.7	4.2	33.2	2.8
1902	32.4	1.1	50.9	3.9	24.8	2.8
1903	28.9	0.0	53.1	4.5	28.7	2.8
1904	30.0	1.7	45.9	3.3	22.9	2.0
1905	29.0	1.0	48.2	6.5	22.0	3.1
1906	18.5	0.0	50.2	7.1	26.4	3.1
1907	35.5	0.0	65.2	7.0	41.2	3.4

TABLE 1.—*Gauge records of certain rivers of the United States*—Cont'd.

TENNESSEE.

Year.	Chattanooga.		Florence.	
	Highest.	Lowest.	Highest.	Lowest.
1867	58.6	----------	31.1	----------
1871	----------	----------	----------	0.0
1872	----------	----------	16.4	−0.8
1873	----------	----------	22.9	−0.5
1874	----------	0.7	26.0	0.0
1875	54.0	2.2	29.4	0.4
1876	31.1	1.0	19.8	−0.6
1877	28.7	1.2	19.4	0.0
1878	19.2	0.9	13.6	−0.8
1879	38.0	0.2	21.5	−0.5
1880	38.3	1.0	24.5	0.1
1881	22.4	0.0	17.4	0.0
1882	40.2	1.7	29.6	1.2
1883	38.2	0.0	23.3	0.4
1884	42.8	0.2	25.2	0.3
1885	30.4	0.7	17.8	0.6
1886	52.2	1.2	28.1	0.5
1887	27.3	1.2	17.5	0.5
1888	27.0	1.8	20.8	0.7
1889	29.6	2.1	19.7	1.2
1890	42.5	2.0	23.3	1.7
1891	38.9	1.2	22.2	1.0
1892	37.9	1.1	24.0	0.8
1893	33.4	1.6	21.4	1.1
1894	25.5	0.7	17.7	−0.1
1895	32.1	0.7	17.5	0.0
1896	40.5	1.1	20.0	0.1
1897	37.9	0.4	32.2	−0.5
1898	24.6	1.6	13.8	0.4
1899	40.0	0.8	25.2	−0.1
1900	24.3	1.0	19.5	0.1
1901	37.4	2.1	18.9	0.8
1902	40.8	1.2	21.7	−0.4
1903	31.8	0.6	18.8	−0.5
1904	22.1	0.1	17.2	−0.5
1905	22.4	1.2	16.7	0.0
1906	33.3	3.2	16.7	1.5

MISSOURI.

Year.	Kansas City.	
	Highest.	Lowest.
1844	[a] 36.0	----------
1873	19.3	2.0
1874	16.2	1.5
1875	17.8	1.8
1876	18.0	2.0
1877	22.2	3.8
1878	19.8	3.5
1879	19.2	3.2
1880	16.7	? 2.0
1881	26.3	3.0
1882	19.2	1.2
1883	23.8	? 5.0
1884	? 17.2	? 3.0
1885	19.1	3.8
1886	15.8	0.2
1887	20.2	1.8
1888	20.4	4.7
1889	13.9	3.2
1890	17.2	0.2
1891	23.1	2.5
1892	24.9	1.5
1893	18.1	3.1
1894	20.1	4.3
1895	16.9	3.3
1896	19.2	2.8
1897	22.8	2.0
1898	21.5	4.0
1899	23.3	5.2
1900	17.8	4.2
1901	19.4	3.7
1902	23.2	3.5
1903	35.0	3.5
1904	25.2	2.1
1905	23.0	2.0
1906	19.7	2.3
1907	24.0	4.1
1908	30.5	3.7

CONNECTICUT.

Year.	Springfield.	
	Highest.	Lowest.
1801	21.0	----------
1843	20.4	----------
1854	22.3	----------
1862	22.0	----------

[a] Approximately.

TABLE 1.—*Gauge records of certain rivers of the United States*—Cont'd.
CONNECTICUT—continued.

Year.	Springfield.	
	Highest.	Lowest.
1869	20.4	
1871	13.0	0.10
1872	14.2	1.10
1873	15.0	0.6
1874	17.5	1.0
1875	15.0	0.8
1876	17.0	0.6
1877	16.5	1.2
1878	18.5	1.2
1879	15.8	1.6
1880	10.8	1.0
1881	11.5	1.7
1882	10.9	1.6
1883	14.6	1.8
1884	16.0	2.2
1885	13.3	2.4
1886	16.0	1.6
1887	17.0	2.1
1888	17.7	2.2
1889	11.3	3.2
1890	11.7	2.8
1891	14.3	2.8
1892	13.8	3.0
1893	18.2	2.1
1894	10.4	2.6
1895	20.2	3.4
1896	20.2	3.5
1897	15.3	3.8
1898	15.5	3.8
1899	16.2	3.6
1900	17.0	3.6
1901	19.8	3.6
1902	19.3	3.1
1903	17.4	3.1
1904	15.3	3.1
1905	17.6	3.6
1906	15.1	3.0
1907	15.5	3.3

The point should be fully recognized that these records are valueless for establishing either side of the forestry argument unless they clearly indicate a new tendency in river flow. It is not enough to cite a few isolated cases. In a period of, say two hundred years, there must be a record year for high and one for low water. Is there any reason why it might not occur this year as well as earlier? There must be clear evidence of permanent change before any conclusion can be legitimately drawn. In two instances such a tendency may possibly be claimed, the Ohio at Pittsburg and the Connecticut at Holyoke, which show, in the past few years, a greater frequency of high waters than for some years previously.[a] To whatever extent this may be true, it is certainly not due to deforestation. The change in the forested areas on the watersheds of either of these streams has been relatively very slight in the past twenty years. The great inroad into the timber of the upper Ohio took place many years ago. Since that time many cleared areas have grown up to timber while new areas have been cut. The change one way or the other in recent years, compared with the total area, is altogether insignificant. The Connecticut watershed above Holyoke has a greater forested area than it had forty years ago. This is due to the abandonment of former farms, which, in many instances, have grown up to timber. It is doubtful if the recent cutting in the White Mountains offsets this, and, so far as snow melting is concerned, what cutting there has been is certainly in favor of uniformity of flow.[b]

[a] In the period of thirty-four years from 1874, the Ohio River at Pittsburg rose above 15 feet on the gauge 148 times. In the first half of this period, 68 of these freshets occurred and 80 in the second half. The mean for the first half was 19.3 feet and 20.2 feet for the second half. The mean of the lowest waters of the first half was 0.3 feet and 1.6 feet for the second half. In Transactions (Am. Soc. C. E., Vol. LVIII, p. 31), is a twenty-year volumetric record of the Connecticut, which indicates somewhat higher high waters during the last half of the period. But in this case, as at Pittsburg, higher low waters are also indicated. In fact, in both cases, the greater run-off in the later period was clearly due to greater precipitation.

[b] "I have seen in the last few years abandoned farms (abandoned because of their unprofitableness) on the western slopes of the Allegheny Mountains, which are almost impenetrable forests of thrifty trees suitable for making mine posts and telegraph poles. There are, of course, large areas subject to fires at intervals of a few years, but that they are subject to such recurrent fires is proof of their rapid production of fuel, which means twigs and leaves in great abundance." (Col. Thomas P. Roberts, Pittsburg, Pa.)

"The forest area in Vermont is probably 10 per cent greater than forty years ago. Of course the quality of the forest is inferior, but that has no effect on the watershed." (Arthur M. Vaughan, state forester.)

"Farms in the Connecticut Valley are among the richest in the State (New Hampshire) and have been less abandoned than elsewhere. There has been, however, a goodly acreage, very probably amounting to 25 per cent, which was cleared land in 1850, and which at the present time has reverted to forest; much of it excellent white pine forest." (Philip W. Ayres, forester.)

The records of some American rivers have been given. It is, of course, in Europe that one would expect to find more definite data because of the longer periods through which records have been kept. The histories of several of these streams have been examined without finding any confirmation whatever of the forestry theory. The floods on the river Seine, for example, show greater heights in the sixteenth century than in the nineteenth. The most exhaustive investigation of the records of European rivers, however, is that of the Danube, the great river of central Europe, recently made by Ernst Lauda, chief of the hydrographic bureau of the Austrian Government. The years 1897 and 1899 brought destructive floods to the valley of the Danube, that of 1899 being particularly severe. M. Lauda prepared an exhaustive report upon this flood, published in 1900, accompanied by elaborate maps and tables and a searching analysis of the climatic and other conditions. In his concluding remarks, M. Lauda traces the history of the Danube floods for eight hundred years, including in all 125 floods. His conclusions are that floods were formerly just as frequent and as high as they are in recent times and that the progressive deforestation of the country has had no effect in increasing them. In fact, the records of the flood of 1899, which was a summer flood, produced almost entirely by rain, showed that it was severest on those very parts of the watershed that were most heavily forested.

At the Tenth International Congress of Navigation, held at Milan in 1905, one of the four questions appointed for discussion was the very one here under consideration. Papers were presented by representatives from France, Germany, Italy, Austria, and Russia. While all the writers heartily favored forest culture, the opinion was practically unanimous that forests exert no appreciable influence upon the extremes of flow in rivers. It appears, therefore, that European experience does not support the currently accepted theory.

So much for the evidence supplied by the records in this country and abroad. The constantly reiterated statement that floods are increasing in frequency and intensity, as compared with former times, has nothing to support it. There are, it is true, periods when floods are more frequent than at others, and hasty conclusions are always drawn at such times; but, taking the records year after year for considerable periods, no change worth considering is discoverable. The explanation of these periods of high water, like the one now prevailing, must, of course, be sought in precipitation. That is where floods come from, and it is very strange that those who are looking so eagerly for a cause of these floods jump at an indirect cause and leave the direct one entirely untouched. In the records of precipitation, wherever they exist, will be found a full and complete explanation of every one of the floods that have seemed unusually frequent and severe in recent years. A few examples will be cited:

The great Kaw River flood of 1903, which wrought such havoc in Kansas City, was caused by a wholly exceptional rainfall over nearly all the watershed of that stream. In the first three weeks of May, 1903, more than the normal amount (4.5 inches) for the entire month fell. This was followed in the next five days by 3.4 inches, and upon this was piled 4.7 inches in the succeeding five days, by which time the flood had crested.

In the flood of 1906 in western Washington, which did enormous damage and stopped railway traffic for upward of two weeks, the crest of the flood occurred about the 15th of the month. The month of October had been very wet, and the ground and forest storage was exhausted. In the first half of November 25 per cent more rain fell than in the normal for the entire month, and of this about one-half came on the 13th, 14th, and 15th.

In the flood season of 1905, on the watershed of the upper Mississippi, there fell in the month of April above Pokegama Falls 2.55 inches; in May, 4.95 inches; in June, 8.03 inches; and in July, 6.88 inches, a total of 22.41 inches. The normal for the entire year is 26.5 inches.

In the record-breaking flood of 1907 in the Sacramento Valley 88 per cent of the normal for the month of March (based on twenty-one years' observation) fell in three days (17th–19th), and on one day the precipitation ranged from 5 to 8 inches at the different stations.

In the extraordinary flood of May and June, 1908, in western Montana the precipitation for May, at four selected stations, was 6.5 inches, and for June 4.2 inches. The greater portion of this fell late in May and early in June. The normal for May is 2.6 inches and for June 2.3 inches.

Similar conditions prevail in every great flood, and the true explanation is found in them and not at all in the presence or absence of forests on the watersheds. Whether the forests are in any way responsible for the precipitation itself, and so, indirectly, for the floods, brings up the third of the foregoing general

propositions, viz, that forests do increase precipitation. However strong may be the popular belief in this theory, there is nothing in the records of rainfall to give it substantial support. The author has had occasion, in connection with his official work, to compare the rainfall records in the northern half of the United States from the Atlantic to the Pacific, often with this particular point in mind, and he has never found anything to indicate a change. So far as he has examined European records the same result holds, and he believes it to be true the world over, except where climatic changes have resulted from causes entirely disconnected with the operations of man in changing the face of nature. In fact, the claim that forests increase precipitation (about 10 per cent, according to Mr. Pinchot) leads to some contradictory results in the forestry argument. Coincident with our recent high waters, which are attributed so largely to deforestation, there has been an increase in precipitation where there should, apparently, have been a decrease.[a] It is evident that where one rule applies the other fails. So, likewise, it is held that forests are necessary to protect mountain slopes because of the greater precipitation prevailing there; yet the forests are said to increase this precipitation materially.

There is really very little, theoretically, to support the claim that forests insure precipitation. It is said that the cooler status of forest areas condenses moisture and induces precipitation; but if this were so in midsummer, when the least precipitation falls, how about the rest of the year, when no such difference exists, but the reverse, if anything? Take, for example, the great forests around the source of the Yellowstone. During the period when the bulk of the precipitation falls the temperature of the forests can not differ materially from the outside, and it is impossible to believe that the forest exercises much influence upon the snowfall.

The fact that these high areas are generally wooded is frequently cited to prove that forests produce the higher rates of precipitation which also prevail there. But would it not be more reasonable to say that the forests flourish there because of the higher precipitation, and that the latter is due to the elevated situation and consequent lower temperature? Is not this, in fact, the reason why precipitation is nearly always greater upon the hills than upon the neighboring lowlands? The mountains are nature's wine press, by which she extracts from an unwilling atmosphere the elixir of life for the hillsides and the valleys below, and she does this whether the forests have been cut away or not.

In one respect, and a very important one, forests diminish precipitation, and that is in the deposition of dew. Dew is essentially an open-country phenomenon, where the radiation of heat from the earth's surface is unobstructed. Clouds or high cover of any kind, and also wind, interfere with this process and prevent the dew from gathering. It collects in full strength on low shrubbery, to a less degree on small trees, as in orchards, and penetrates for short distances under forest cover. In the heart of the native forest of full-grown timber, however, dew is practically unknown. The quantity deposited in the open country in a single night is quite large under favorable conditions, leaving the effect on shrubbery and on the ground of a considerable shower. As it gathers in greater or smaller quantities on every clear, still night in the eastern sections of the country, except in the colder season of the year, the total quantity must be quite large.[b]

One authority holds that dew does not come entirely from the air, but in part from the ground. It is said that water, which in the daytime passes from the ground and plants into the air, is prevented from doing this at night because the air can not receive it, and therefore it gathers in visible form on the ground and vegetation; but if this were true, it really makes no difference in the benefit which comes from the dew. Whether the low temperature due to radiation causes a deposit of moisture from the air or prevents the air from absorbing moisture which it otherwise would, the result, so far as the ground and vegetation are concerned, is practically the same.

[a] As a step in the crescendo of gloomy forebodings upon this subject that have filled the periodicals during the past twelve months, the following from the September Scrap Book is the very latest: "When our forests are gone the streams will dry up, the rivers will cease to run, the rain will fall no more, and America will be a desert." Considering how large a percentage of our forests has already disappeared, the extraordinary rains in all parts of the United States during the past year are not exactly in line with this dismal prophecy. If one were to judge from the records of the past few years only, he must conclude that deforestation is increasing rainfall.

[b] The author has never seen any data as to the actual quantities of dew deposited in different localities and conditions, and hopes that the discussion of this paper may bring some to light. He has, however, vivid recollections on the subject when, as a lad on a dairy farm, it was his unlucky lot to go barefooted after the cows every morning without waiting to see whether the sun was going to shine or not. He knows from experience how near zero the dew point can get, and how wet dew is, and also that the warmest place in the world, at such times, is where a cow has lain all night, and next to that the dry precincts of the tall woods.

This may be as good a place as any to note one important characteristic of precipitation, and that is its tendency to move in cycles. It is well known that dry years often follow each other for long periods with great regularity and that these are succeeded by wet periods. Take the region of the upper Mississippi reservoirs, where the normal precipitation, based upon twenty-one years' observation, is 27.1 inches. In the ten years 1886 to 1895 this normal was exceeded only once; in the succeeding ten years the record fell appreciably below it only once. Omitting these two years, the mean for the two periods of nine years was 24.7 and 30 inches, respectively, an average yearly difference of nearly one-fifth of the normal. Following the well-known law that the percentage of run-off increases and diminishes with the precipitation, the disparity between the run-offs for the two periods was greater still.

This phenomenon is also admirably illustrated in the rise and fall of the levels of the Great Lakes, for these immense storage reservoirs not only absorb and distribute annual variations of run-off, but equalize to a large degree the variations from year to year. During the period of the eighties there was a general rise in the lake levels except Superior; and many people ascribed this fact to deforestation, which allowed the water to find its way more quickly into the Lakes. During the nineties there was a period of general subsidence, occasioning considerable anxiety; and it was frequently asserted at that time that this was due to deforestation, which was drying up the streams. For some years now the Lakes have been rising, Ontario being the highest in forty years, and with another wet year the levels will almost reach record heights.

The long record of the Danube floods, already referred to, is another example. Almost invariably high floods would follow each other for several years in close succession, and then would come long intervals of ordinary high waters.

These periodic changes are not, of course, due at all to the presence or absence of forests, for they occur just the same whether forest conditions remain unchanged or not. It is an order of nature not at all understood, but, nevertheless, fully established as a fact. Just now we are in an era of high precipitation and, consequently, of high waters. There is a disposition to "view with alarm" these exaggerated conditions. Rarely does one stop to think how far better it is to the country to have these wet periods, even with all their floods, than the dry periods that will surely follow. A single dry year may cause more loss to the country through the shrinkage of crops than the floods of an entire cycle of wet years.

Related to the subject of precipitation is that of evaporation as affecting the quantity of water that remains upon the ground. Generally speaking, the surface evaporation in summer should be greater in the open than in the forest, because of the more direct action of the sun and wind; but in the height of summer the forests arrest precipitation to such an extent in the leaves and humus that more of it escapes through evaporation than in the open. The effect of forests upon evaporation through the medium of their leaves finds its counterpart in the similar action of the growing crops that overspread deforested areas. As already pointed out, the forests of the mountains increase the evaporation from snow very materially.

Where the balance lies among all these conflicting influences affecting precipitation and evaporation it is impossible to say, and when the records are examined it must be admitted that they afford no answer. So far as the researches of science have yet determined, the presence or absence of forests cuts no figure in climatic conditions. These depend upon causes of far greater magnitude and are influenced, if at all, only to an insignificant degree by the operations of those who occupy the planet.

The fourth proposition of the forestry argument is that forests are necessary to prevent erosion on steep slopes and the consequent silting of reservoirs and water courses below. Here again there is the same deficiency of evidence to support the theory that has characterized the three propositions already considered. The author has been unable to find anything to confirm it. In his observations, embracing pretty nearly all varieties of timber land in the northern two-thirds of the United States, he has still to see a single example where the mere cutting off of forest trees leads to an extensive erosion of the soil. Almost invariably, and it may be said always except in very unusual conditions, a soil that will sustain a heavy forest growth will immediately put forth, when the forest is cut down (or even burned down), a new growth, generally in part different from the first, but forming an equally effective cover to the soil. The only approach to an exception to this rule that he has observed is in some of the high mountain forests where the soil is extremely thin and weak and the action of nature in producing vegetable growth is slow. Plate CX, fig. 2, shows one of the best examples of this class of timber lands;

but even here the slow growth is very evident and no large amount of soil erosion resulted. In the forest areas of the East the growth that follows tree cutting, consisting not only of new trees but of briars and small brush of every description, accumulates very rapidly and forms a more effective mat against erosion than the original forest itself and equally effective in storing water. Such low growths have also a better effect upon snow melting, because they give both wind and sun freer play. Certainly the ground in a forest under culture, with the débris raked up, is more easily eroded than that of a slashing or second-growth area, or even good meadow or pasture. A forest soil unprotected by forest débris is almost as erosible as a field under culture.

The increased erosion of the soil, of which so much is heard, does not result from forest cutting, but from cultivation, using that term in its broad sense to include all of man's operations for the occupancy and utilization of the ground from which the forests have been removed. It is the "breaking of the soil" that leads to its erosion by the elements. Roads and trails are one of the great sources of erosion in hilly countries, but plowing and tilling are the principal causes. The question is not one of forests in the first instance, but of how far the cultivation and occupancy of the soil can be dispensed with. Even on steep mountain slopes, where erosion and ruin have resulted, the effect is often due to the clumsy and injudicious work of the husbandman who uses no judgment of cause and effect in the way he exposes the soil to the force of the storms. The successful cultivation of hillsides in every quarter of the globe is an everlasting refutation of the argument that forests are necessary to protect the face of the earth wherever cultivation is practicable. Some classes of cultivated vegetation, like the well-knit turf of meadow or pasture, are a better protection against erosion than any ordinary forest cover. That there are sections of the country where erosion of the soil is much more rapid than in others under similar conditions is perfectly true. This is especially the case with certain districts in the Southern States, and very likely forest protection is there better than any other; but it is still true that the problem of control of soil erosion on cleared lands is essentially a problem in cultivation. It is not so much the absence of the forest as it is the cutting of roads and ditches, the upturning of the soil, and the various kindred operations of man that quicken the run-off and increase the surface soil wash.

The oft-repeated assertion that, owing to the cutting off of forests, our rivers are shoaling up more than formerly may be challenged absolutely. There is nothing in our river history to support it except in a few instances, like the Yuba River in California, where extensive hydraulic or similar operations have produced vast changes. It is exceedingly doubtful if it can be established by any evidence worthy of the name that the streams of the Mississippi basin are more obstructed by sand bars than formerly. The author's observation of upward of twenty years and inquiries from many sources fail to disclose any such evidence. It would not, indeed, be surprising if some such result were noticeable, for it would naturally seem that the cultivation of the soil has facilitated to some degree the wash into the streams. If this is the case, however, the rivers do not show it. They have a way of distributing their burdens so as to meet their necessities, and, except in rare cases, they do not shoal appreciably more than formerly.[a]

The distinction between erosion actually resulting from cultivation and that assumed to result from timber cutting is important to keep in mind, for it fixes the burden of responsibility where it belongs. It shows that this erosion or soil wash can be reduced only by the elimination or control of cultivation, and the question at once becomes that of the extent to which such control or elimination is practicable. For example, it is insisted that the suggested reservoir system of the Ohio, to be referred to later on, will be absolutely dependent for its integrity and permanence upon keeping the watersheds above them covered with forests. But it is understood not to be the policy to include in the proposed forest reserves any lands that are fitted for agriculture.[b] As elsewhere pointed out, that portion of these areas, which is not reduced to cultivation, will not be subject to erosion more than at present by the mere fact of cutting off the timber, for the natural growth on logged-up lands is just as good a protection as the forests themselves. If the agricultural tracts are still to be left open for occupancy, the source of sediment remains uncurbed and the whole argument for forest reserves, on the ground of protecting the reservoirs from sedimentation, falls to the ground.

Some reference should be made to the real significance of the alarming reports which have been put forth concerning the washing of our soils into the sea. Over and over during the past year has the statement appeared that 1,000,000,000 tons of our soil is annually carried by our rivers into the ocean. This figure itself is quite conservative, but the conclusions drawn from it are not at all so. Taking the results of silt observations on the Mississippi River and its tributaries for 1879, and applying the Missouri rate to all western streams outside the Mississippi basin, and the Ohio rate to all eastern streams outside the same basin, a total of about 1,100,000,000 tons is indicated. But 1879 was a low-water year in the Mississippi basin, and the quantity for average years may probably be 1,500,000,000 tons and for extreme years 2,000,000,000 tons.

Let us look these prodigious quantities squarely in the face and see what they mean. Where does this enormous volume of soil come from? It is, as one might infer from published references to the subject, from our cultivated fields, an annual toll laid upon the precious fertility of our agricultural lands? Not at all. Only a very small proportion comes from this source. Possibly half of the total quantity of sediment goes down by the Mississippi. All authorities agree that the greater portion of this comes from the Missouri. From computations which the author has made, he believes that fully two-thirds of it comes from that source. The observations of 1879 indicate that five times as much sediment comes from that stream as from the Ohio. But where does the Missouri get it? Almost entirely from the most useless areas of land with which any country was ever afflicted. The barren Bad Lands are the principal source. Much comes from the mountains; much from the sand hills; very little, relatively, from cultivated areas. Of the balance of the soil wash of the United States, by far the greater portion comes from other similar sections of the West, where the streams carry enormous loads of sediment. The entire Colorado system is even more distinguished in this respect than is the Missouri. The same is true of the Rio Grande, the Pecos, and the upper courses of the Arkansas and Red. Even the streams of the great interior basin are heavy silt bearers, and the same is true of many of the streams of the Pacific coast. The streams flowing into Puget Sound are heavily laden with silt at certain portions of the year, and the great Columbia bar is impressive evidence of the vast burden of sediment which that mighty river has carried to the sea. Nearly all of the annual load carried by these streams is entirely unaffected by anything which man has done. It is the regular natural carving down of the hills and building up of the valleys and estuaries below.

The eastern streams are clear and sediment free compared with those of the West, but even in these a large portion of their sediment is eroded from the gorges and canyons of the hills and mountains, which will continue to wash away as long as the rivers flow. This particular class of erosion, on both eastern and western rivers, is far less objectionable than one is led in these later days to believe. Has it not from the beginning been one of the most beneficent operations of nature? Are not the richest lands in the world—the river bottoms and deltas—built up in this way? To a very great extent the irrigated lands of the West are composed entirely of the débris from the mountains and the Bad Lands. Even to-day this tribute from the highlands is of great value. The periodic enrichment of the Ohio bottom lands and similar tracts in hundreds of other places is of the highest economic importance. The soil-laden waters of irrigation in the spring, though sometimes injurious to the growing crop for the time being, are, on the whole, extremely beneficial. The damage from sediment is not in its injury to the lands ordinarily, but to ditches, canals, reservoirs, and similar works. On the whole it is, and always has been, a benefit to the lowlands. Even that portion carried out to sea builds up deltas and surely, though slowly, extends the habitable area of the globe. Not alone in the resources of water and timber, but in the perpetual renewal of soil as well, has the valley said to the mountains throughout the world's history:

I will lift up mine eyes unto the hills from whence cometh my help.

Sediment of this character, except when accompanied by alkaline salts or other similar ingredients, is not injurious to domestic supply. The water of the Missouri River is one of the

[a] The absurd length to which this erosion argument has been carried is well illustrated by the remark made in a recent address by one of the officials of the Forestry Service: "This energy (of running water) is expended in rolling along stones and gravel to finally build up the mouths or beds of the great rivers. Next year there will be a bill introduced in Congress providing a forest reserve in the Appalachian Mountains, so that the rocks from these mountains will be kept from the Mississippi River?"

[b] Among references to the intention not to absorb agricultural lands in the areas conserved by the reservoirs is the following from A. F. Horton, Assoc. M. Am. Soc. C. E., in Engineering News, June 11, 1908: "The reader should not lose sight of the fact that the conserved area is not rendered unfit for cultivation or other use, but that only a small portion of the conserved area (that covered by the reservoir) is so utilized that its value for cultivation is destroyed."

healthiest drinking waters in the world in spite of the fact that it is one of the muddiest.[a]

The proportion of soil wash that comes from cultivated fields is really very small compared with the enormous total that the rivers carry away. Heavy rains undoubtedly wash farm soils a great deal, but this erosion is in large part a transfer from one spot to another and not an absolute loss. The history of the old Ohio Canal reservoirs indicates very little filling in the sixty-six years that they have been in existence. According to the chief engineer of the Ohio state board of public works, it is scarcely appreciable in some of the reservoirs, and in none does it amount to as much as 6 inches, or one two-hundredth inch per year from the tributary watershed. Yet these reservoirs are surrounded by rich agricultural lands. The silt observations on the Ohio in 1879 indicate only a little more than one six-hundredth inch over the entire watershed, but this, it is true, was a year of light rains.

It is readily seen that the formidable danger of which so much has been written of late becomes quite harmless as to quantity when it comes down to the individual farm. The harm is probably not so much in the quantity of soil actually lost as in the fact that the soil may be leached of some of its more important ingredients. The evil is one which can be controlled only by better methods of farming, whereby the surface waters will be restrained from eroding the soil; but even these measures have their adverse side, for when heavy rains prevail for a long time it is more important to the farmer to get the water off his land than it is to save a little soil. Most of the soil will stop on lower ground and not be wholly lost, but if the water is not gotten rid of the crop may be ruined.

The caving of the banks of our great rivers is constantly cited as an example of soil loss on an enormous scale, and it is asserted that this condition is worse now than formerly. The Mississippi and Missouri rivers, practically alike in this respect, are the two most prominent examples. The author will consider briefly the case of the Missouri, because he has had a long and intimate acquaintance with that stream from its mouth to its source.

It may be stated by way of refutation that the actual condition of this stream to-day is better than before settlement began in its valley, except that possibly the low-water flow is slightly diminished to meet the demands for irrigation. The stream is not "constantly becoming more and more savage," as a recent writer asserts. On the other hand, its natural savagery is much restrained. Probably 100 miles of its banks are protected; snags and drift heaps are largely removed; considerable bottom land has been reclaimed and turned to industrial use; floods are no greater than they used to be, and navigation is safer and easier. Navigation has ceased; not because the river has deteriorated, as is commonly asserted, but because the natural difficulties peculiar to this stream are so great and so hard to overcome that boats can not live and do business at the same rates at which railroads transport freight.

That the river is a most destructive one to the bottom lands along its course is only too true, but the character of its destructive work is generally misunderstood. The writer just quoted states that the river carries away annually 8,000 acres of bottom land within the limits of the State of Missouri alone. The total acreage of these lands is about 640,000. If this statement were true, more than the entire area would have been carried away since the voyage of Lewis and Clark, and if the process had been continuous since Columbus discovered America, the river to-day would be flowing in its original channel in the solid rock, 75 to 90 feet below the present surface. As a matter of fact, there is more soil in the valley to-day than there was at the date of either of these events. Taking an average for a considerable period, none of the bottom land is lost. It has always been slowly rising through accretion. The bank caving is only a transfer from one point of the shore to another. For every dissolving bank there is a nascent bar. Where steamboats ran last year willows may be growing this, and next year the farmer may be planting his corn. The havoc wrought concerns the individual owner, but not the valley bottom itself. The cruel losses attract attention; the unobtrusive gains do not, but the account always balances itself. The harm done is, first, to the individual whose possessions are swept away and, second, to the community through paralysis of development, depreciation of values, and the holding back of this natural garden spot from becoming what is ought to be. The evil is a very real one, and the author has long endeavored, though without success, to secure provision in the river and harbor bill for its amelioration.[a] Great as the evil is, however, it is not at all in the nature of an actual loss of land to the valley.

It must be clear from the foregoing that the bottom lands of the Missouri add nothing whatever to the total quantity of sediment that passes out of the mouth of the stream, for these bottoms have been increasing rather than diminishing in quantity. Likewise the Mississippi bottoms contribute nothing to the volume of sediment that is carried into the Gulf of Mexico. It all comes from the uplands, far and near, but principally from the more remote and hilly regions. This load is in the nature of through traffic. The local freight picked up from a caving bank is mostly discharged at the next station. It follows, therefore, that if the banks of these streams were revetted from the Gulf to Pittsburg, the Falls of St. Anthony, and the mouth of the Yellowstone the quantity of sediment passing into the Gulf would not be diminished a particle. Such revetment would nevertheless be of the very highest value, if it could be made to hold, for it would give permanence to the banks, security to riparian property, and would largely prevent bar building by training the river in a regular channel and relieving it of everything except its through load of sediment.

The bank-caving problem of these valleys is unaffected in any appreciable degree by the influence of forests or cultivation on the watersheds, and can not be solved or materially assisted by any practicable changes in these conditions. The problem is strictly a local one, and the remedy must be a local one. Even if it were possible to bring the waters down from the uplands perfectly clear, it is not at all certain that the effect upon the bottom lands would not be injurious rather than beneficial; for then the caving soil, instead of being quickly deposited again, would in part be carried out to sea, and the bottom lands, unless protected, would be gradually eaten away.

In addition to the four main propositions discussed above a few subordinate features of the question will now be considered.

A feature of the Forestry Service which is generally overlooked is the possible effect of culture upon the bed of humus so much relied upon in these discussions to prove the restraining action of forests upon run-off. Mr. Pinchot, in his statement to the Judiciary Committee, said:

"The effect of a forest on a steep slope is to cover that slope with leaves, rotten and half rotten sticks, and other mechanical obstructions which prevent the water from running below as rapidly as it would otherwise."

It is understood that the forest policy is to keep this litter cleared up as a measure of fire protection, and one frequently sees in articles on forestry photographs of the typical forest culture in which the ground is thoroughly cleaned up. The result must be to diminish proportionately the retentive action of the forest bed and to increase its liability to erosion. In the light of the foregoing discussion fire protection is of much greater importance than the retentive effect of the forest bed on the run-off. The remarkable degree to which the forest bed will dry out in prolonged drought, making it one vast tinder box, supports this conclusion, and is another proof of the extreme desiccating effect of forest growth upon the soil.

It often escapes attention, except with those who are in the woods a great deal, that the water establishes little channels through the débris where the latter is of long accumulation and somewhat permanent in character. Such débris does not in reality offer so great an obstruction to flow as one would suppose, and as would be the case if its condition underwent frequent change.

The statement is constantly met that forests are very efficacious in the protection of river banks from undermining and steep slopes from sliding. The exact reverse is the case. As every river engineer knows, nothing is more disastrous to a river bank on an alluvial stream than heavy trees. This is due partly to the great weight, but in large part to the swaying effect of the wind and the enormous leverage of the long trunks which pry up the ground and facilitate the tendency to undermining. One of the regular policies of river control is to cut down these trees for a distance back from the edge of the bank wherever complications with private ownership do not prevent. Snags and driftwood in the channels have always been among the most serious obstacles to navigation on streams flowing between forest-covered banks. Likewise where railroad or highway grading cuts the skin of unstable mountain slopes, the presence of large trees immediately above tends powerfully to loosen the ground and cause it to slide; and in such cases it is necessary to cut down the timber. Far better than forest trees on river banks are thick growths of willow, alder, or any of the

[a] The late J. B. Johnson, Member of American Society of Civil Engineers, used to say, in extolling the virtues of Missouri River water, that it was the most perfectly filtered water in the world; with this difference, however, that in the ordinary case water is run through the filter, but here the filter is run through the water.

[a] Transactions, Am. Soc. C. E., Vol. LIV, p. 336.

smaller close-growing shrubs; and on side hill slopes either such shrubbery or a good turf.[a]

In the current discussion a great deal is made of the fact that mountain slopes are "quick spilling," the deduction being that they therefore are more productive of floods. This is quite contrary to the fact. It is perfectly true that more rain falls on the hills than on the lowlands, that a greater percentage of rainfall runs off from steep than from flat slopes, and that it runs off more rapidly; but it does not follow at all that these conditions produce greater floods. A mountain stream carries off the water within its banks a great deal faster and more safely than a similar stream in the lowlands. The banks are almost always stable and the bottoms rocky or composed of heavy gravel or bowlders; in fact, floods do less harm on such streams than on any others. In the lowlands, where the streams have smaller slopes and unstable banks, much smaller run-off produces greater floods and more destruction. Moreover, nature to a large degree adapts streams to the work required of them. The channels of the tributaries of the Ohio have been carved out through long ages to carry in safety the average flood flow. Area for area of watershed, their cross sections are much larger than those of streams in climates of less rainfall. The normal section of the Ohio at Wheeling is over 2 square feet for every square mile of watershed, while that of the Kaw River at Kansas City is less than one-third square foot per square mile. It is therefore wholly erroneous to conclude that the streams of these mountains are more subject to overbank freshets than those of the lowlands or that the freshets themselves are more destructive. Considering the conditions growing out of settlement the reverse is unquestionably the case.

There is one other consideration of prime importance in this forestry argument, and that is the fact that no possible development of forestry can increase the present percentage of forest-covered areas. At least as much ground as is now devoted to agricultural purposes must continue to be so used. The utmost admissible expansion of national forests will never require a greater area than is now occupied by forests and second growth or logged-off lands, which, so far as run-off and erosion are concerned, are just as effective as the virgin forest itself, and more effective than will be the groomed forest of the new régime. There may be a shifting of areas devoted to forests, but possible expansion, compared with the present area, is so small that its influence upon the great rivers, even admitting the full force of the forestry argument, would be wholly inappreciable.

The fact just dwelt upon should make us thankful that the forestry theory as to the stream flow is not correct. Whatever the value of forests, we can not have them everywhere, and by far the greater portions already cleared away must always remain deforested. If this fact of deforestation has brought with it in greater degree than of old the calamities of high and low waters, then, indeed, we are in an unfortunate case. But it has not done so. Nature has decreed no such penalty for the subjugation of the wilderness, and on the whole these natural visitations are less frequent and less extensive than they were before the white man cut away the forests.

In summarizing below the foregoing argument, the author would be particularly careful to guard against sweeping assertions in any of his conclusions. He well understands how little the subject is capable of precise demonstration. Snow, for example, does not always fall, even in the open country, under the influence of the wind, or it may fall in a wet condition that keeps it from drifting. Altitude comes in with its lower temperature and modifies the general result. There is a vast difference between a northern and a southern exposure even with the same slope and topographical conditions. Precipitation scarcely ever occurs twice alike on the same watershed. The combination of flow from tributaries is never the same in any two floods, and there is an endless variety of conditions that must qualify our rules and make us cautious in making claims in a matter of this kind. The author objects solely to the contrary course pursued by many forestry advocates—to the extreme claims that forests exert a regulating influence upon stream flow in times of great floods or extreme low water in our larger rivers. These claims stand to-day absolutely unproven. The difference between past and present conditions is not great. One influence offsets another with such nicety that the change, if there is any, is hard to find. The "delicate balance" maintained by nature where man has not cut away the forests is replaced by other balances equally delicate and efficacious in the drainage of lands, the growing of crops, and the deposition of dew.

In the following seven propositions the author sums up the arguments presented in the foregoing pages:

(1) The bed of humus and débris that develops under forest cover retains precipitation during the summer season, or moderately dry periods at any time of the year, more effectively than do the soil and crops of deforested areas similarly situated. It acts as a reservoir moderating the run-off from showers and mitigating the severity of freshets, and promotes uniformity of flow at such periods.

(2) The above action fails altogether in periods of prolonged and heavy precipitation, which alone produce great general floods. At such times the forest bed becomes thoroughly saturated, and water falling upon it flows off as readily as from the bare soil. Moreover, the forest storage, not being under control, flows out in swollen streams, and may, and often does, bring the accumulated waters of a series of storms in one part of the watershed upon those of another which may occur several days later; so that, not only does the forest at such times exert no restraining effect upon floods, but, by virtue of its uncontrolled reservoir action, may actually intensify them.

(3) In periods of extreme summer heat forests operate to diminish the run-off, because they absorb almost completely and give off in evaporation ordinary showers which, in the open country, produce a considerable temporary increase in the streams; and therefore, while small springs and rivulets may dry up more than formerly, this is not true of the larger rivers.

(4) The effect of forests upon the run-off resulting from snow melting is to concentrate it into brief periods and thereby increase the severity of freshets. This results (*a*) from the prevention of the formation of drifts, and (*b*) from the prevention of snow melting by sun action in the spring, and the retention of the snow blanket until the arrival of hot weather.

(5) Soil erosion does not result from forest cutting in itself, but from cultivation, using that term in a broad sense. The question of preventing such erosion or soil wash is altogether one of dispensing with cultivation or properly controlling it. The natural growth which always follows the destruction of a forest is fully as effective in preventing erosion, and even in retaining run-off, as the natural forest.

(6) As a general proposition climate, and particularly precipitation, have not been appreciably modified by the progress of settlement and the consequent clearing of land, and there is no sufficient reason, theoretically, why such a result should ensue.

(7) The percentage of annual run-off to rainfall has been slightly increased by deforestation and cultivation.

If the foregoing propositions are correct they enforce two very important conclusions—one relating to the regulation of our rivers and the other to forestry.

It follows that no aid is to be expected in the control or utilization of our rivers, either for flood prevention, navigation, or water power, by any practicable application of forestry. Remember always that it is the extreme of flow, not the medium condition, that controls the cost of river regulation. It is the floods and low waters that measure the cost. Any scheme of control that is not based upon these is worthless. This proposition need scarcely be urged upon the experienced engineer. For himself he would never place any real reliance upon forestry. Called in consultation, for example, in the problem of protecting the city of Pittsburg from floods, he would be bound to take as his measure of the problem the highest recorded flood on the river, with a good factor of safety on that, and then figure out by what methods—artificial reservoirs, levees, raising of grades, or clearing the river channel of artificial obstructions—he would obtain the desired relief. He would not dare, as the physician in the case, to advise his patient that he could dispense with or lessen in any degree the application of the remedies proposed, nor save one dollar of the cost, by anything that might be done in reforesting the watershed of the rivers themselves.[a]

In like manner no engineer could honestly advise lowering in height by a single inch the levees of the Mississippi because of any possible application of forestry to the watershed of that stream. And, again, he could not advise that forestry development would lessen in any degree the cost of improving the rivers for low-water navigation. Engineers fully under-

[a] The following testimony before the board of consulting engineers, Panama Canal, is to the point (Report, p. 329):

Question by Mr. WELCKER. Mr. Chairman, I would like to ask if Mr. Dauchy thinks that vegetation prevents the sliding?

Mr. DAUCHY. My experience has been the reverse; I have stopped sliding hills by cutting off the vegetation. The weight of the timber on a sliding slope aids materially to assist the sliding.

Mr. WELCKER. Does not the vegetation diminish it?

Mr. DAUCHY. If you could get a grass-covered slope it would help to diminish it.

[a] Possibly the author is too positive in this opinion. He finds that, in one case at least, the city of Williamsport, Pa., reputable engineers have advised reforestation of mountain slopes as a protection against floods. The statement of "an eminent authority" was cited with approval to the effect that "four-fifths of the precipitation is detained by the surface of the ground" under forest cover. But here, as in all these assumptions, the rule applies only to the average condition. The point is overlooked that in periods of heavy precipitation the retentive capacity of the forest bed becomes exhausted. If the city of Williamsport is relying upon this advice, it is certainly laying up for itself a season of repentance.

stand their responsibility in these matters. But great engineering projects can not be carried out without money, and the people will not give the money unless convinced of the necessity and wisdom of the plan proposed. So long as there is apparently some easier and simpler plan, some panacea, no matter how nebulous or unproven, that offers a way out without the expenditure of so much cold cash, they will be backward in voting money, and the counsel of the engineer will be of no avail. Hence the complete divorcement of forestry from any connection with river regulation, so far, at least, as its effect upon the cost of such regulation is concerned, will be a distinct and positive gain to the latter.

In the second place, forestry will be left to work out its own salvation without any reference to the rivers. Will not its cause be promoted by this divorcement? At first thought it may seem that thereby one great argument for forestry is lost; but no argument can be of value in the long run that is not based upon truth, and the disappointment that is certain to result in the fulfillment of these hopes will do more harm than good. Forestry does not need any such support. It stands on a basis of its own, too broad and too sure to require any extraneous aid. What is this basis? The reply may be given in the beautifully appropriate phrase that occurs in the act of Congress creating the first of our national parks—"the benefit and enjoyment of the people." In the matter of benefits forests are necessary, because they produce the most important material of construction known to man; even iron can not be excepted. From the lead pencil to the mast of a ship, from the infant's top to spacious temples and palaces, it enters into nearly every requirement of human existence. A large portion of the structures for human habitation are built of it. The land transportation of the world is closely dependent upon it, for if it were not for the railroad tie scarcely a car could run. It is only when one stops to think a little upon the unlimited adaptability of wood to human needs that its transcendent importance is borne in upon him.

In the matter of enjoyment, no other work of nature has done more for the uplifting and ennobling of the mind than these "first temples" of God. It requires no argument to enforce this assertion, particularly with him who has been reared in close companionship with the woods. Sad indeed will be the day, if it ever comes, when the people are deprived of this source of healthful pleasure, for which no adequate substitute can ever be found.

And yet this supremely important resource in human happiness is strictly limited, and the visible supply is fast disappearing. Statistics fix the date, almost as confidently as an astronomer predicts an eclipse, when the doomsday of its final disappearance will come, unless something is done to prevent. Most fortunately this material, unlike copper or iron or stone, is a vegetable product capable of self-renewal, and the supply can be kept up forever. This is what gives its extreme importance to forestry. It requires no dubious support from any other source. It fully justifies the splendid work that the Forestry Service is doing and demonstrates the wisdom of the farsighted men who are laying the foundation of our future national forests.

Let us now inquire if it will not be to the advantage of this great work to be absolutely independent of any connection with waterway development. Will it not be better in every way for forestry if it is promoted solely on the basis of producing trees for human use and enjoyment, and not at all for any supposed influence upon flow of streams? Is it really a wise move, so far as forestry is concerned, to single out the rugged and inaccessible mountains as localities where our future supply of timber must come from? The availability of forests to human needs depends very largely upon the situation in which they grow. Few people understand the exceeding importance of this matter. The converting of a forest tree into form for use involves two distinct processes—the conversion of the tree into lumber or other product and its transportation to the place of consumption. The cost of logging operations is immensely increased by the roughness of the ground. In our western forests, for example, it requires a higher grade of skill, commanding higher wages, to "lay" a tree on a steep hillside than on even ground. The losses from breakage in falling are much higher and the difficulty and expense of getting the logs out much greater. In fact, the increase of cost runs all the way from $1 to $10 per 1,000, depending upon the situation. Engineering News stated the case very forcibly in regard to the Appalachian forests—though it did not have this particular thought in mind—when it said in a recent issue that "the cutting off of forests on the remote mountain slopes has only become possible with the high price of lumber that has prevailed for ten years past." This increase of cost represents the perpetual tax that the public must pay for timber from these regions as compared with that from the lowlands. And a great deal of it can never be gotten out at all. The poet's "gem of purest ray serene" was not more lost to human needs than are tens of thousands of noble trees in the rugged fastnesses of our mountains, east and west. Benefit? To convert them into lumber will cost more than they are worth. Enjoyment? Only the solitary hunter or mountaineer ever sees them. These are not the places to rear up forests for the good of the people.

Consider the question of transportation and take Chicago as being practically on the meridian through the center of population of the country. The rate on fir from the Cascades to Chicago is 55 cents per 100, or $16.50 per 1,000 feet B. M. The average rate from the Appalachian forests is about 18 cents, or about $9 per 1,000 for green oak. By a proper distribution of our forests these rates, on the average, ought to be brought within 10 cents per 100. In logging and transportation together the country will tax itself on the average not less than $10 per 1,000 for whatever supply it derives from these mountain forests, as compared with what it might receive from forests more favorably located.

If it were not for the erroneous assumption that forests have a regulative effect upon the flow of our navigable rivers, would not the policy in regard to the acquisition of lands for forest reserves be quite different from that now proposed? If Congress were to vote, say, $10,000,000 at the next session to commence the establishment of national forests by purchase, would it not be far better spent in lands where the pine, oak, cherry, and ash used to grow, in locations convenient for access by the people and in every way better adapted to their needs? States, counties, or other agencies should be required to meet half the original cost. Even if the total cost to the Government were several times what equal areas in the mountains cost, it would be far more economical in the long run. There is an abundance of land in nearly all the States suitable for the purpose that can be had at not excessive cost. In New England, for example, would not the development of forests in the lowlands, where in many places former cultivation has been abandoned, be far better than to buy up the difficult slopes of the White Mountains? Let there be a national forest in every county of the United States where it is practicable to create one. Let its location be carefully chosen so that its product may be manufactured and shipped with the smallest cost to the people, and serving also not only as a pleasure ground, but as a stimulus to similar work by private agencies.

It will be urged that these mountain lands are worth more for forestry than for agriculture. Very true; but that would not justify their purchase if the same money would produce a better result elsewhere. "Never buy what you do not want because it is cheap." Again, it may be said that here is our only remaining timber supply in the East, and it must be saved. Except in some possible economy by the more judicious cutting under government control, it is not apparent how a forest tree that has attained its growth is going to render any greater good to humanity by being saved for the next generation than by being cut for this. There is a general sentiment current in these later years that if timber is cut off by private agencies it is wasted; but does it not find its way into common use just the same? Not as completely, perhaps, but still substantially the same. Take the combination of the Weyerhauser Timber Company, considered entirely apart from its economic and ethical aspects as a great trust or corporation, and solely as a preserver of our forests. With its system of fire control, its policy of holding its timber for high prices, is it not really conserving the timber for future use? To speak of such timber as being "lost" to the people, "wasted," and its acquisition as a "looting of our heritage," is as disingenuous as it is untrue. Will its lumber cost the consumer a cent more per thousand than if it were from a government reserve? It is a wholly gratuitous assumption that our timber is going to be "wasted" unless it is placed under government control. The thing of prime importance is to get new forests started. In the thirty to fifty years that our present supply will last new forests should be brought into existence all over the country. This is far more important than to buy the virgin timber of the Appalachians.

Moreover, it seems now to be considered that the virgin lands have already risen too high in price to be purchased by the Government, and that it is only the second-growth lands that can be economically acquired.[a] Be that as it may, it is certain that the acquisition of such of these lands as are desirable for the strict purposes of timber production will be greatly facilitated by disabusing the minds of the owners of the impression so diligently fostered of late that the very salvation of the country depends upon their selling out to the Government. Can

[a] Report of Secretary of Agriculture on Southern Appalachian and White Mountain watershed, December, 1907, pp. 8, 30, 35.

anyone doubt that the present course will add vastly to the purchase price?

Still another argument that may be urged is that only by linking the forests with the rivers in a way to establish their utility in maintaining navigation can the constitutional objection to the acquisition of these lands be overcome. But does this apply to mountain forests more than to any others? It is incontestably true that whatever restraining effect forests have upon run-off is greater upon the lowlands than upon steep mountain sides. This legal feature of the question will be referred to further on.

RESERVOIRS IN THEIR RELATION TO STREAM FLOW.

Under this heading artificial reservoirs alone are included. Natural reservoirs of various kinds exist nearly everywhere and exert a profound influence upon stream flow. The ground is the most important of these, absorbing on the average probably one-third of the total rainfall. Natural lakes are great regulators, the St. Lawrence system being the most perfect example. Forests are effective reservoirs at certain seasons. Swamps and low-lying grounds along river courses, like the great flood basins of the Sacramento and the Mississippi, are, in their natural state, enormous reservoirs which greatly reduce the flood flow of the river channels. Snowdrifts, particularly the great drifts of the mountains, are splendid reservoirs. The streams themselves have immense storage capacity; for example, the Mississippi within levees store at least two thousand billion cubic feet of water from Cairo to the Gulf, between extreme high and low water stages. All these reservoirs and many of less importance are ever active in regulating the flow of streams. Without them precipitation would flow off as fast as it arrives and our greatest floods would be magnified many times.

Here we are considering only those reservoirs constructed by man to supplement and extend the regulating effect of nature's reservoirs. If the conclusions reached in the first section of this paper are correct, forests can not be relied upon in any degree to help solve the problems of high and low water. Present conditions must be met by purely artificial means, since man has so far discovered no way of controlling the climatic conditions which govern precipitation. He can not "stay the bottles of heaven" in times of flood, nor open them in seasons of drought. He must take the water after it reaches the earth and deal with it the best he can.

The artificial reservoir is intended to attack this problem at its source. It catches and holds back the water in the near vicinity of its deposition, instead of waiting until it gathers into the rivers and then building huge bulwarks to contain it there in times of flood. It saves the stored-up supply and gives it out in the low-water season, thereby helping navigation, instead of dredging and otherwise treating the water courses to increase the low-water depth. It corrects one of the greatest deficiencies of nature by abolishing inequalities of stream flow and converting waste into utility. Theoretically, it is the perfect plan. It has always appealed to the imagination of layman and professional alike. It has often been resorted to, and the number of reservoirs in the world is very great and constantly increasing. Hitherto they have been mainly used for power, municipal supply, irrigation, and for navigation in canals. In very few instances have they been applied to improve the navigation of large natural water courses, and in none, so far as the author is aware, for the exclusive purpose of preventing floods.

The question arises, Why are they not regularly applied to these last-mentioned purposes? The answer may at once be given that in the general case the cost is greater than the benefits to be received. This element of cost arises mainly from the absence of good sites (including dam sites as well as holding basins), and also, to considerable extent, from an interference with the purely artificial conditions growing out of the settlement of the country.

The best reservoir site is a natural lake. Such a site is already covered with water, and original conditions are not materially changed. Evaporation is not much increased by the necessary enlargement. Smaller and safer dams accomplish a given storage than for the average dry site. The question of public health involved in uncovering large areas for reservoir beds in the heated portion of the year is less serious. Everything makes these sites the most advantageous that can be found, and it may be laid down as a rule that the public good requires the utilization of every such site to the fullest possible extent.[a]

Except in a few cases, dry sites are deficient in these advantages. Greater areas of land have to be condemned and larger and costlier dams are required, with vastly greater danger in case of accident. Really good sites are not as abundant as one might wish, and the problem of developing storage on such sites is beset with difficulties of many kinds that greatly increase the cost.

In 1897 the author made a careful study of this question of flood control by means of reservoirs in connection with an official investigation of the advisability of building reservoirs in the arid regions. His view of the difficulties in the way of any general application of such a system is quite fully stated in his report (House Doc. No. 141, 55th Cong., 2d sess., p. 46), and the following extracts are directly in point:

"It is the cost, not the physical difficulties, which stands in the way. It may be stated that, as a general rule, a sufficient amount of storage can be artificially created in the valley of any stream to rob its floods of their destructive character; but it is equally true that the benefits to be gained will not ordinarily justify the cost. The reason for this is plain. Floods are only occasional calamities at worst. Probably on the majority of streams destructive floods do not occur, on the average, oftener than once in five years. Every reservoir built for the purpose of flood protection alone would mean the dedication of so much land to a condition of permanent overflow in order that three or four times as much might be redeemed from occasional overflow. One acre permanently inundated to rescue 3 or 4 acres from inundation of a few weeks once in three or four years, and this at a great cost, could not be considered a wise proceeding, no matter how practicable it might be from engineering considerations alone. The cost, coupled with the loss of so much land to industrial uses, would be far greater than that of levees or other methods of flood protection. * * * The construction of reservoirs for flood protection is not, therefore, to be expected, except where the reservoirs are to serve some other purpose as well."

The above conclusions are still as applicable as they were when written. The subject has been given renewed prominence quite recently in connection with the Ohio River floods; but before considering this particular application attention will be given to certain reservoir systems that have been proposed elsewhere, and particularly to one already built and put in operation by the Government and which will be referred to frequently hereinafter. This is the system at the headwaters of the Mississippi—the largest artificial reservoir system in the world.

The project of converting the more important of the numerous lakes around the sources of the Mississippi and its tributaries into storage reservoirs as an aid to navigation was originally proposed by Gen. G. K. Warren, and was first put into definite shape by Colonel Farquhar, of the Corps of Engineers. The plan then embraced a large number of lakes in Minnesota and Wisconsin, but only five sites have actually been improved. The dams were first built of timber cribs, but have recently been rebuilt in concrete. The combined storage is about 93,000,000,000 cubic feet. It is about twice the mean annual run-off from the watershed, and the system is probably the only one, except the Great Lakes, which equalizes periodic as well as annual fluctuations of flow—that is, it carries over the surplus from wet years to help out in dry years—and its utility is, therefore, of the most comprehensive character. The cost of the five reservoirs is remarkably low, although it is not now possible to tell the exact cost of the present structures on account of the mixture of old and new work; but it probably does not exceed $750,000, including a lock in the Sandy Lake Dam. This is only $8 per 1,000,000 cubic feet, or 35 cents per acre-foot on the basis of total capacity. It would be about twice this on the basis of the mean annual run-off from the watersheds.

A large portion of the original project has been abandoned because public sentiment did not support its continuance. The author has always regretted this backward step, as he believes in developing to the fullest extent the exceptional opportunities here offered for the storage of water. The available reservoir sites which could be cheaply improved in Minnesota and Wisconsin are sufficient to control absolutely the floods of the Mississippi within the danger line, for a long distance below St. Paul, and to improve the navigation of the upper river very materially, while their value for industrial purposes is almost beyond estimate.

[a] An interesting feature of these natural reservoirs may be noted. A natural lake wholly uncontrolled at its outlet may have a more effective control of the outflow than an artificial reservoir of equal superficial area when full, though of far greater capacity between high and low water. The outflow from a lake can be increased only by storing simultaneously a quantity of water measured by a rise in the surface equal to that in the outlet necessary to give the increased flow. But if the artificial reservoir has reached the limit of its allowable filling, the outflow must be made equal to the inflow. If this limit is reached before or at the time of maximum run-off, then a quantity equal to this run-off must be let out of the reservoir. This contingency can never happen in a natural lake. The turning point where outflow and inflow balance each other is always after the crest of the flood has passed—in fact, at the time when the diminishing inflow and increasing outflow balance each other and the lake ceases to rise. In the case of the Yellowstone Lake (140 square miles), for example, this rise, in average seasons of snow melting, continues from ten days to three weeks after the inflow has reached its maximum, and surrounding streams have subsided materially before the Yellowstone River (at the lake outlet) ceases to rise.

In spite of the great and obvious advantages of this system, it has not yet received the popular approval that might be expected of it. In fact, about three years ago, there arose a widespread sentiment in the community around the reservoirs that the system was, on the whole, injurious, that its disadvantages far offset its advantages, and a strong movement was organized to have it abolished altogether. For the purpose of investigating this matter, a board of engineers was appointed, of which the author was a member. The board found that there was a general belief among the people below the dams that they actually increased the floods, while the people above complained bitterly of the back waters caused, throughout that low country, by filling the reservoirs so full. The water powers immediately below the dams complained that they were not getting even the normal flow of the stream, which was the case. Navigation interests below St. Paul have always been lukewarm in regard to the beneficial effects of the reservoirs, and the board was able to find only one steamboat captain who would make a positive statement that the boating interests derived any particular benefit from them.

Some curious results developed in this investigation. It was found that, great as the reservoirs are, conditions may arise in times of excessive precipitation that will compel them to discharge a greater quantity of water than would flow from the Lakes in their natural condition. That is, they might actually operate to increase the floods if they should fill to their limit during a period of excessive precipitation. This very contingency nearly happened in the season of 1905, as may be seen on the curve (Fig. 2) illustrating the effect of the reservoirs on the flood situation at Aitkin, Minn., about 130 miles below. On figure 3 is shown a comparison of the natural and regulated

DIAGRAM SHOWING EFFECT OF UPPER MISSISSIPPI RESERVOIRS ON FLOOD SITUATION AT AITKIN, MINN., 1905.

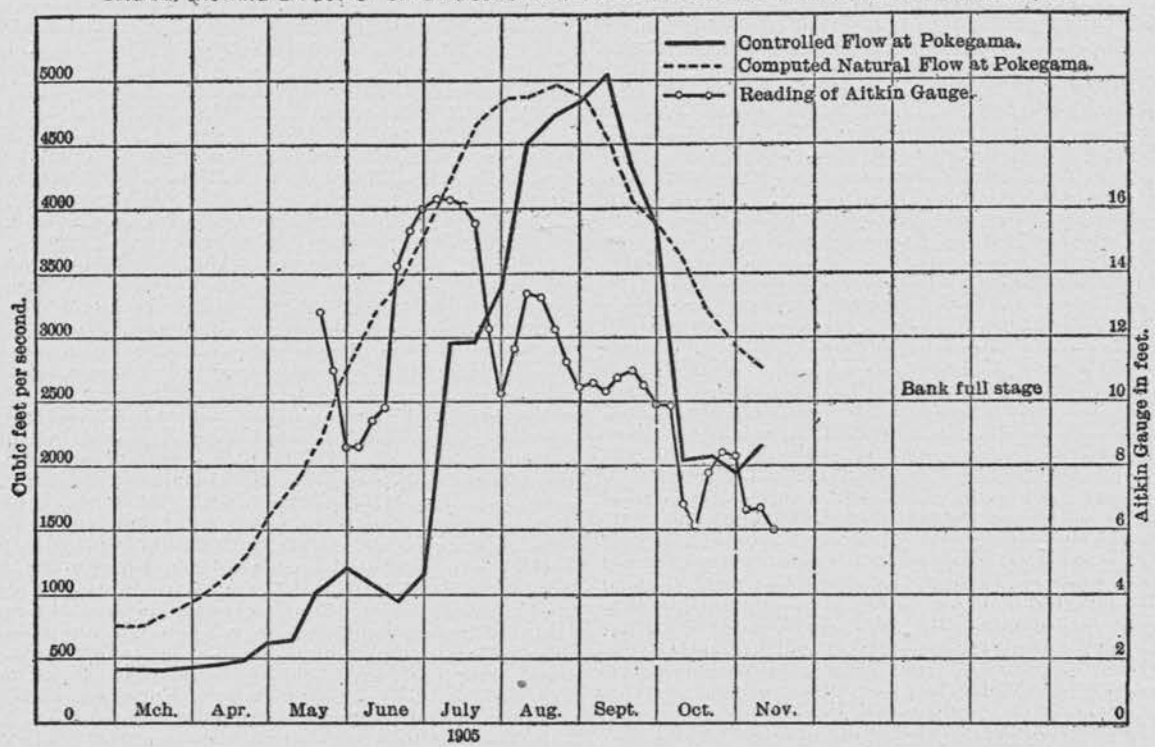
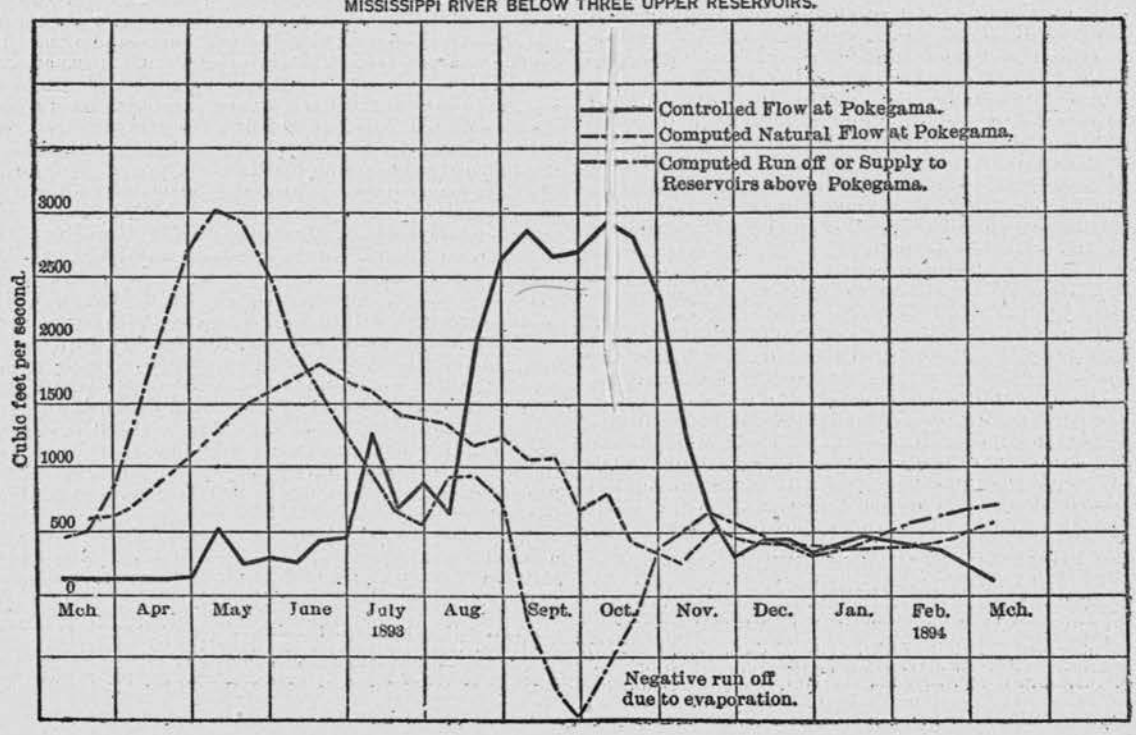


DIAGRAM SHOWING COMPARISON BETWEEN NATURAL AND CONTROLLED FLOW OF MISSISSIPPI RIVER BELOW THREE UPPER RESERVOIRS.



flow of the Mississippi below the three upper reservoirs, the latter being operated in the interest of navigation alone. These curves show very clearly that the natural flow of the river was more uniform than is the regulated flow.

In like manner, during the period of lowest water, viz, in mid-winter, the reservoir gates are closed down to about 400 cubic feet per second, and the great water powers, like those at the Falls of St. Anthony, are even worse off than in a state of nature; but this drawback is not so great as might be thought, because the powers are able to utilize most of the storage when it comes during the period of navigation.

Such are some of the complications and drawbacks which are encountered in this reservoir system, and which would surely be met in a system built up under less favorable natural conditions.

Nevertheless, the board found that the system was in itself a very great benefit and that the lack of appreciation of its advantages was for the most part due to ignorance of what they actually were. At the public hearing the opposition fell to pieces by the mere force of a better understanding, and it is safe to say that the system will never be abandoned, but will be extended along the lines of the original project.[a]

The United States Geological Survey has recently proposed quite an extensive reservoir system for the Sacramento basin, similar in principle, though smaller in extent, to that of the proposed Ohio system. The flood problem of the Sacramento River is the most difficult in the United States in proportion to its magnitude. In fact, it seems as if it will prove impossible to convey the extreme floods of that river to the sea without extensive overflow of the bottom lands along its course. The proposition to control the floods to some extent by means of reservoirs was elaborately set forth in the paper by Messrs. Clapp, Murphy, and Martin, previously referred to. The subject had already been considered by the commission of engineers appointed by the State of California in 1904 to devise a plan of flood relief. The commission reported that, while any help from such a source must, of course, be welcome in solving the problem, it was very doubtful if such aid would be of sufficient importance to justify giving it much weight.[b] In discussing the paper above referred to, the author stated that, while he had never visited the sites in question, it was his opinion that, as to most of them, it would not be possible to realize over one-fourth to one-third of the benefits claimed, and he based his opinion on the published records of the flood of 1907, which was the greatest in the history of the river. George L. Dillman, M. Am. Soc. C. E., in discussing the paper, flatly pronounced the whole scheme impracticable and gave his reasons in detail for this conclusion.[c] Among them he cited in one case the great value of the lands to be flooded by the reservoirs, which he claimed were altogether more important for agriculture than for any diminution of flooding which the storage might cause in the valley below. In another case he cited the difficulty, which always suggests itself to an engineer in considering the subject, of timing the operations of the reservoirs so as to combine their effects to the best advantage, and particularly in keeping them empty in periods of prolonged precipitation, so that their capacity may be available at the critical moment. Other obstacles were pointed out, and the whole discussion presents another instance of the practical difficulties that stand in the way of any comprehensive reservoir scheme for controlling floods.

In 1903 the great flood of the Kaw River brought up the reservoir question again. Ex-Senator Burton, of Kansas, advocated the plan very urgently, stating in a speech at Kansas City that he "would have tens of thousands of reservoirs, beginning at the headwaters of the stream and coming right down." A board of engineer officers was appointed to investigate the practicability of providing against future disasters such as this flood had caused. The reservoir idea had made so deep an impression upon the public mind that a specific consideration of that feature of the problem was requested. In its report[d] the board found adversely to the scheme on the ground that its great cost, conservatively estimated at $11,000,000, and the annual loss from the withdrawal of the necessary lands from occupancy, conservatively estimated at nearly $600,000, would not be justified on the ground of flood protection alone. Owing to the character of the country, this last consideration was particularly strong. The only real justification of so extensive a system in a country so largely devoted to agriculture would be its use in irrigation and power; and if it became necessary for these purposes, doubtless a portion of it would be built.

[a] The report of this board contains exhaustive data upon the system and its operation. It may be seen in the annual report of the Chief of Engineers for 1906, p. 1443 (Appendix AA, published separately in pamphlet form).

[b] Report, Commissioner of Public Works, State of California, for 1905.

[c] Proceedings, Am. Soc. C. E., May, 1908, p. 464.

[d] S. Doc. No. 160, 58th Cong., 2d sess., pp. 14–17.

The most elaborate study of this subject ever undertaken until very recently was made by the French Government to determine whether reservoirs could be utilized to prevent the recurrence of such great disasters as the floods of 1856 in the valleys of the Rhone and other streams. A full résumé of these studies is given in the author's report, already referred to, on "Reservoir sites in the arid regions." The conclusion was the same that has been reached in every similar investigation. An interesting feature of the system then considered was that the reservoirs were to have sluices permanently open, so that it would not be possible to close them entirely. They would operate, it was expected, to hold back a definite percentage of flood discharge—enough to keep the floods below the dams within safe limits. They would thus act automatically, just as forests are supposed to do. This was all right so far as the individual tributaries were concerned, but it was found, when the possible effect upon tributary combination in the main stream was considered, that, by holding back earlier portions of freshets and prolonging their run-off, they might actually swell the combination in the lower courses of the main stream.

Similar studies have frequently been made in all the principal countries of Europe, and in none of them, so far as the author is aware, has such a project on a large scale ever been undertaken or even favorably considered.

Coming now to the Ohio River, the immense importance of that stream as a factor in the floods of the Mississippi makes the regulation of its flow a matter of greater moment than that of any other stream. The project of controlling the run-off of its watershed by means of reservoirs was urged very forcibly more than sixty years ago by Col. Charles Ellet. The subject has often been considered since, both in private and official investigations. The conclusion has invariably been that, great as the benefits of such a system would be if in existence, the cost of bringing it into existence would be out of all proportion to such benefits.

The scheme has recently been revived in a more attractive form, with data not hitherto available, and at a time when a period of heavy floods and much loss therefrom has turned public attention strongly upon the subject. Moreover, it comes supported by a comparatively new element in its favor—the vast expansion of water-power development made possible by the electric transmission of energy. The new presentation of the project is by M. O. Leighton, associate member of the American Society of Civil Engineers, Chief Hydrographer United States Geological Survey, and is understood to bear the approval of both the Interior and Agricultural departments.[a] Mr. Leighton does not claim that his presentation is at all final or complete, but is rather a "statement of possibilities" which he believes are sufficiently promising to justify the Government in giving the scheme thorough investigation before further extensive steps are taken on present lines in the matter of flood control and channel improvement in the main rivers of the basin. Although an estimate of cost is submitted and certain conclusions are based thereon, it is stated that the data are too meager to give much confidence therein. Subject to these qualifications, the system, as set forth in Mr. Leighton's paper, embraces reservoirs on nearly all the tributaries of the Ohio; the total cost is estimated at $125,000,000; the income from resulting water power at $20 per horsepower; and a certain computed lowering of flood heights on the Ohio and Mississippi rivers, and a corresponding increase in low stages, are given. The full details of the scheme are set forth in quite elaborate form. So far as the present criticism is concerned, the practicability of finding the necessary sites will be accepted, and only the estimate of costs and revenues and the deductions as to benefits will be called into question.

In their effect upon floods, admitting that all the reservoirs proposed can be built, the result must fall short of the claims put forth. If built at all, they must be built, as will be shown later, primarily for power development. It will never be possible, until science can forecast the weather more perfectly than it is yet able to do, to regulate reservoirs for the maximum benefit of both purposes. This consideration is sometimes made light of, but nevertheless it is one of real importance. For industrial purposes the reservoirs should be full before the rainy season ends; for flood protection they should be so far empty that they may be able to hold back any flood-producing storm that is likely to come. While, doubtless, in a majority of years, a middle course could be pursued that would not involve much risk on the flood side of the question nor much loss on the power side, yet there would surely come exceptional seasons—

[a] The author has seen the description of the proposed system only as published in Engineering News, May 7, 1908. He has had some correspondence with Mr. Leighton and is under great obligation to him for a complete set of topographic sheets showing the various reservoir sites.

the seasons of flood-producing rains or the seasons of great drought—when the reservoirs would be caught too full on the one hand or too empty on the other. Their full calculated capacity would not then be available for either purpose, and it is difficult to conclude that this would not happen frequently. In particular, if the reservoirs are really operated to prevent floods, it must often happen that dry weather will find them only partially filled, and that their full capacity will not be available either for power or navigation. This would not apply, of course, to a reservoir great enough to store all the run-off from its watershed in the greatest known flood, unless considerable storage were left over from previous years—as is often done in the upper Mississippi reservoirs. Mr. Leighton's estimates are based upon the mean discharge of the streams, which is, of course, greatly exceeded, possibly doubled, in very wet years. In any case it would seem to be necessary to hold ample capacity in the reservoirs as late as the end of March each year to provide for possible emergencies; but if this is done, there will be many years when the reservoirs will not fill.

An important consideration in the use of the reservoirs for flood control is that of a proper combination of their outflow. To anyone who will try to figure out how this can be accomplished over a watershed of such vast extent, with storms arriving at different times in the various portions, with no way of telling when, where, or with what intensity they will arrive, with the varying distances of the different reservoirs from those points where flood control is particularly important, the problem seems almost impossible—that is, impossible to realize the full effect based upon the aggregate capacity of the system. It is understood that Mr. Leighton has endeavored to do this, but it would be interesting to see the application to some of the great floods that might be designated. For example, in the flood of 1907, which reached its maximum at Cincinnati and Pittsburg about the same time, no amount of holding back of the storm water on the upper Ohio at that time would have helped the situation at Cincinnati at all.

Another important consideration in the effect of these reservoirs, as they would have to be operated to prevent floods, is the great change that takes place in a flood wave as it propagates itself downstream. The author is unable to tell from Mr. Leighton's paper to what extent he has considered it. The paper itself seems to indicate that the discharge held back by a particular reservoir produces a corresponding volumetric effect (not gauge effect, of course) at all points below, after making a due allowance of time for the transmission of the wave. This would be an erroneous conclusion. For example, a wave that might rise at Pittsburg from 100,000 cubic feet per second to 150,000 a day later and to 200,000 the next day, and then fall at a corresponding rate, would not at any point below produce a maximum increase of 100,000 second-feet; and the farther away the point considered, the less would be the increase. At Cairo, nearly 1,000 miles below, the same wave would take a much longer time in passing, probably not less than a week, and the maximum increase would probably not be more than 25,000 second-feet. This is merely a general illustration, for exact data on the subject are not available. The problem is of such complexity that nothing but the results of long experience could establish a rule as to what might be expected in any given case; but it can be stated with certainty that the diminution of discharge at any considerable distance below the reservoirs for a given time would never be as great as the amount held back by the reservoirs in the same length of time, and that, the quicker and the higher the flood, the smaller the relative effect at all points below. It is only when such wave elimination merges into a constant quantity, continuing for a considerable time, that the full effect of a reservoir would be experienced at any point below. This, in fact, is what would actually happen in the contrary case of the low-water season when the reservoir discharge is kept up for a long time.

Still another feature in the high-water effect of such reservoirs is the demand for water for power at all times. If there should ever result any really general use for all this water, as is predicted, then the consumption for power would make a considerable river in itself. Now this much can not be shut off in any case. Street cars and shops must run and houses must be lighted whether the flood is ruining the lowlands or not. An example of this occurred in 1905 on the upper Mississippi, where the outflow from the upper dams was cut down to a minimum to reduce the flood in the valley at Aitkin, which was then being overflowed by the river. The mill at Grand Rapids, just below the reservoirs, made a strenuous protest and even threatened legal proceedings to compel the release of the full normal flow of the river.

Considering all the foregoing features of the operation of the proposed system, even if every reservoir were built with the full estimated capacity, it would be extremely fortunate if 75 per cent of the predicted results, either in flood protection or in aid of navigation, could be realized.

It is in the matter of cost, however, that the weak point of Mr. Leighton's system appears. Judged by any reasonable standard, his estimates are hopelessly wide of the mark. The method itself of getting at a basis of cost is inadmissible. For example, in determining a unit of cost for that class of reservoirs which embrace the greater portion of the total storage, the figures for nine reservoirs are taken, counting as one the whole upper Mississippi system. Only the Mississippi system has been built; two others are under construction and six are merely projected. In accordance with almost universal experience, and especially in view of the great advance in prices of all kinds since these estimates were prepared, it must be expected that these works, if ever built, will cost from 25 to 50 per cent more than the estimates. Three of the projected dams are of the relatively cheap rock-fill construction, which would be inapplicable to most of the Ohio dams from considerations of safety.

The controlling element, however, in the unit estimate, is the Mississippi system, whose capacity is nearly one-third of the whole group considered and whose unit cost is only about one-seventh of the average cost of the others. The use of the Mississippi reservoirs in any way as a basis of estimate for the Ohio system is wholly inadmissible because of the dissimilarity of sites. The Ohio sites, with one exception, are dry sites—totally different from the lakes of Minnesota. Even the latter reservoirs could not now be built for three times what they have actually cost the Government. The flowage lands embraced about 80,000 acres, which were nearly all reserved while yet belonging to the Government. A few recent purchases of additional lands found necessary, and the experience now being met in acquiring the flowage rights for a reservoir at Gull Lake, show that, if these lands were to be bought to-day, they would cost from $10 to $25 per acre. The right of way alone would now cost twice as much as the dams.

Compare any one of these structures—Leech Lake, for example—with a representative masonry dam like the Cheesman dam on the South Fork of the South Platte River above Denver, Colo. The author is familiar with both sites and once submitted a plan and estimate for a structure on the Cheesman site almost exactly like the one built. Lake Cheesman is a more favorable site than most of those on the Ohio system, for, although its capacity is not as great as some, the dam site is exceptionally advantageous, one of the most perfect in nature—a very narrow gorge in solid granite, with a natural spillway already provided. In several of the Ohio sites entire towns will have to be removed, important railroads will have to be relocated, a few mineral properties will be destroyed, and, in nearly all, road systems will be seriously disarranged. None of these conditions were encountered to anything like the same extent in the Cheesman site. Undoubtedly its unit cost, which is estimated at about $250 per 1,000,000 cubic feet, was as low as can be possibly realized on the Ohio system as a whole. Compare this with less than $5 for Leech Lake or $8 for the whole Mississippi system.

A recent example of projected storage is that presented by the late George Rafter, member of the American Society of Civil Engineers, for the Genesee River near Portage, N. Y. Owing to the moderate height of dam (apparently less than 150 feet) and the large capacity of reservoir (15,000,000,000 cubic feet), this is believed to compare favorably as to unit cost with the Ohio system. The estimate was $216 per 1,000,000 cubic feet. If it were to be built under the present conditions of the market it would doubtless cost $250. It is understood that later investigations have shown that Mr. Rafter's estimate is only one-half large enough.

In 1895 the author made an extensive examination of storage possibilities in Ohio, near the divide between Lake Erie and the Ohio River, for the purpose of providing a water supply for certain projected canals. He prepared estimates for two sites on the headwaters of the Cuyahoga, for one site at the head of the Scioto, and for one at the head of the Great Miami. The estimates were based upon actual surveys and are given in detail in the report upon the subject.[a] The type of construction was not expensive. The total capacity was 11,000,000,000 cubic feet and the unit cost $300. To-day it would be at least $350.

Most of the proposed sites for the Ohio reservoirs are not advantageous sites. The topography of the country is unfavorable. The sites are not compact basins, like those occupied by lakes or ponds or mountain meadows, but are, for the most

[a] H. Doc. No. 278, 54th Cong., 1st sess., pp. 78, 83, 86.

part, trunk valleys with numerous tributaries, nearly all of them quite narrow. They may be roughly compared to the form of the hand with the fingers outspread, the dam occupying the position of the wrist. The ends of the fingers are frequently many miles from each other and from the dam. Numerous villages occupy the valleys. The road systems of the local communities traverse them. The disadvantage that will result to public travel by forcing it out of these natural routes over the hills and around the ends of the fingers will be very great. The lands lying between the fingers, in some instances, will be so far cut off from convenient access that their value will be much impaired, and damages will have to be paid on that account. In several instances the necessary changes in railroad alignment in the hilly country will be extremely costly, if not impracticable. A great many cemeteries will have to be removed, which means, not only the cost of removal, but extensive purchase of lands outside. Such drawbacks are, of course, encountered in all similar work, but they are excessive in these sites. They are mentioned solely from their relation to the question of cost. No one can examine the maps of these sites and not be convinced that the cost of right of way and damages alone will considerably exceed Mr. Leighton's estimate of the entire cost of the system.

An element affecting cost is that of safety. Owing to the situation of many of these proposed reservoirs, the results of failure of the dams would be so appalling that no chances can be taken. The structures can be made safe, of course (except against earthquakes), but it will cost money. Nothing short of the highest type of construction—masonry for all the larger dams—can be considered. Mr. Leighton has cited certain dams upon the integrity of which great interests depend as evidence of the confidence of engineers in these structures, but if he will apply their costs, particularly those of important structures in Europe, to his proposed system, the money value of safety will mount up to a prodigious figure.[a]

A feature of this question of safety often overlooked is the depreciation of the market value of property, due to its location below a dam where failure of the dam would mean a disaster of great magnitude. However safe the structure may be, many people would not purchase property below it, and its market would be correspondingly diminished. While such loss can hardly be made a subject for damages, it is a real loss to the owners.

These reservoirs being built for flood protection, the sluices must be very large, so that at times they can be discharged practically as fast as the water runs in. This will be necessary during periods of prolonged precipitation in order to keep the reservoirs from filling too full before the danger is past. This detail of construction will add largely to the cost.

Taking everything into consideration on the most liberal basis, it is evident that this system can not be built for less than $250 per 1,000,000 cubic feet. The probable increase in the value of property to be condemned before the system could be built and the present scale of prices of labor and material make this figure a minimum. This would swell the cost of the whole system to over four times Mr. Leighton's estimate, or over half a billion dollars.[b]

This is not all, however. It appears that the complete development of the reservoir system as proposed will take from industrial use probably 1,500,000 acres of land, including the lands actually overflowed, the margins subject to damages, and sites for the dams, and various structures appurtenant thereto. These lands will be in large part, by the very fact that they lie in valleys suitable for storage grounds, the best lands in the localities. Sooner or later they are bound to come into agricultural use, and with proper cultivation their annual net revenue value will be at least $5 per acre. If utilized for forest culture, they ought to yield 500 feet b. m. of lumber and 1 cord of wood annually per acre. The value of the land for this purpose ought to be as great as the figures just given. It thus appears that the occupancy of these lands for reservoir purposes will take from the community an annual product of at least $7,500,000 worth, and probably more.

The reservoirs will store about 2,150,000,000,000 cubic feet of water. Assume that this can be all utilized for water power, with the average head of 200 feet, giving theoretically about 1,600,000 horsepower per year, or 1,280,000 horsepower at 80 per cent efficiency. At $5 per horsepower (the basis for this figure will presently be considered), the revenue from water power will be $6,400,000, which falls short of the loss resulting from withholding the sites from productive use.[a]

Viewed in the light of the foregoing exposition, the weakness of the reservoir scheme as a measure of flood control or for improving navigation is at once apparent. The question is, Will the ends justify the means? If the ends sought could be attained in no other way, possibly they might; but they can be, and for a small fraction of the reservoir cost. Consider the estimate already given, of $500,000,000. Take $40,000,000 and reenforce the entire levee system of the Mississippi. That will make it impregnable—as safe as any of the proposed reservoir dams. Take $60,000,000 and revet the banks of the Mississippi wherever necessary from Cairo to the Gulf.[b] The reservoir project does not touch this important matter at all. Devote whatever sum is necessary to the protection of the bottom lands of the Ohio basin. Give Cincinnati and Pittsburg each $10,000,000 to assist in local changes necessary for complete flood protection. Devote a sum to navigation such as our engineers have never dared dream of, and the Government will still save more than Mr. Leighton's estimate of the whole cost of the reservoir system. The more closely this reservoir proposition is scrutinized as a scheme for flood prevention the more impracticable it appears. It is only a trade off at best. It is giving up to perpetual overflow valuable lands to save others from occasional and even rare overflow for short periods. Now, if, at less cost, these lowlands can be better protected by other means, thus leaving both the valley lands and reservoir sites open to productive use, how much better it will be.

If the author were to venture a criticism on Mr. Leighton's attitude in this matter, it would be that he has not fully appreciated his responsibility in bringing forward again this old proposition without fuller consideration of its organic defects. This is well illustrated in the opening paragraph of his paper, in which he says:

"This report will be confined to a statement of possibilities. There will be no attempt to prescribe methods for treatment of each local modifying condition that will be encountered in the prosecution of the plan here proposed. Such features are merely collateral, and their proper disposition is a matter of ordinary engineering."

This is a complete reversal of his obligation in the matter. The "possibilities" of reservoir control have long been recognized. The logic of the plan is well understood. It has always appealed to the popular mind. In particular, reservoir control of the Ohio floods has been advocated for more than sixty years, and its possibilities have often been investigated. The plan has been uniformly rejected on one ground, viz, that as a scheme for flood control and navigation improvement its benefits would not justify its cost. It is, therefore, incumbent upon whoever revives the scheme to come well fortified upon this particular feature. He must give some study to the treatment of "local modifying conditions." It makes a difference whether he can go to a great natural lake, like Winnibigoshish, and store 40,000,000,000 cubic feet of water for a mere trifle, or whether he must evict whole villages, disturb railroads and highways, absorb valuable lands, and possibly subject communities to serious risk. These are the questions upon which the success or failure of the scheme depends. Yet Mr. Leighton brushes them aside, as it were, with a wave of the hand, as "merely collateral" features, matters of "ordinary engineering" only. Here is the weak point of his project. Weighed in the balance of practical accomplishment, either for flood control or navigation, it will be found utterly wanting, and the development of the system, as has always been held, will have to be based primarily and mainly on its value for industrial use. For the same reasons that the development of a great reservoir system in the far West is justified by its industrial value—its use for irrigation—so a reservoir system for the Ohio or any other rivers, except in a

[a] The recent failure of the Hauser Lake dam on the Missouri River, near Helena, Mont., is a good illustration of how the unexpected may happen. Here was a dam built of steel and concrete, two materials whose properties are thoroughly understood. The case was one which "ordinary engineering" might be expected to handle successfully. The public had reason to feel confidence in the structure. Yet "it fell, and great was the fall thereof," not only in the total wreckage of the dam, but in the losses caused along the valley below.

The accident affords also another illustration of the omnivorous claims put forward in these days in the supposed interests of forestry. The disaster was promptly cited as an example of the havoc wrought by floods in a country without forests. The normal flood discharge of the Missouri at this point is 20,000 cubic feet per second; for 1907, it was 26,000 cubic feet; the maximum on record is about 50,000 cubic feet. At the time of the accident the discharge was about 7,000 cubic feet per second.

[b] Recent examinations of certain sites, embracing nearly 70 per cent of the proposed Monongahela storage, indicate that the whole Ohio system will cost at least a billion dollars, and possibly a billion and a half.

[a] The sanitary feature has not been considered, although it is one of some importance. The laying bare of large areas of reservoir bottoms in the heated portion of the year is objectionable, but it is not a matter affecting the element of cost. Neither is much stress here laid upon the danger to the reservoirs from silting up. This is not a region of heavy silt movement. In most of the reservoirs the process will be very slow, and we may safely leave to distant generations the task of dealing with this problem whenever it reaches an acute stage.

[b] Report Mississippi River Commission, 1896, p. 3457.

few unusual cases, must depend primarily upon its industrial value—the development of power.

In pursuing his criticism further, the author would not be understood to be "knocking," as current slang goes, the feature of the reservoir system just mentioned, because, in his judgment, there is no one thing in the present movement for the conservation of our natural resources that is more important than storing the flood waters of our streams for power development. It stands in the same category with the preservation and extension of our forests. It stands on even a surer basis, for man, either willfully or through neglect, can destroy the forests, but he can never diminish in the smallest degree the power of running water. It is a great solar engine, perennial and perpetual in its action. It requires no aid from man in its production. All he has to do is to utilize it. Providentially electricity has unfolded its power to transmit this energy over great distances, and has thus made practicable a development which would otherwise have been impracticable. In time water power will replace coal and oil, and will become the one great source of power, unless discoveries are made which are not now foreseen. The author thoroughly believes in developing this power through public agencies and preserving it from private ownership and control. His present criticism is directed not at all at the principle involved, but at the extravagant expectations now being fostered as to the possible revenue which the Government may derive from such development.

The quantity of power estimated in the publications of the Geological Survey and the Agricultural Department are based upon an assumption that most engineers will question, viz, that 90 per cent of the fall of our rivers can be utilized in effective head upon water wheels. This is too great a figure. The most thoroughly developed river in the United States, namely, the Merrimac, in New Hampshire and Massachusetts, develops only 70 per cent of the total head. Taking all the streams into consideration, it seems hardly possible that more than 50 per cent of the fall can be utilized. When the fall of a river is uniform, even if quite steep, the cost of long canals or high dams necessary to concentrate it at one point often prohibits development altogether. From altitudes of 3,000 feet the Missouri and Yellowstone, for example, descend to the sea with a total energy of possibly 5,000,000 horsepower; yet comparatively little of this can be developed advantageously. It is only in those places where nature has helped out by concentrating the fall at cataracts or rapids that water-power development is commercially profitable. At low dams, such as are ordinarily built at lock sites, the head is often nearly all obliterated during high water. How far storage may affect these drawbacks can not be said, but it should, of course, help a great deal. The official estimates of flow for nonregulated streams are based on two weeks' average lowest flow. This may probably be extended materially with reservoir aid or supplementary steam power. Possibly the total estimated horsepower may ultimately be realized.[a]

When it comes to the royalty which the Government may receive for these water powers, if developed by private interests, the price of $20 per horsepower, adopted by the Geological Survery and the Agricultural Department, is wholly out of the question under present conditions. Possibly the author does not understand what the figure is intended to embrace. From Mr. Leighton's articles, the inference has been drawn that wherever the work of the Government renders power available which was not available before, either by building dams, as at lock sites, and thus creating a head, or by storing water which might supply powers below with more than they would have without, the value of the power thus rendered available should return to the Government $20 per horsepower per annum—an "exceedingly low price," as Mr. Leighton puts it.[b]

It is not understood that the Government is to build the power plants, but that this is to be done by the interests availing themselves of the privilege. Estimates of undeveloped water powers on many streams of the Atlantic slope, by the Geological Survey, leave one to infer that these powers are considered worth at least $20 per horsepower to the Government, even without dams or reservoir aid. While the statements are not clear as to what is actually meant, the various references to resources to be derived by the Government from these powers lead to the above conclusion. It would be of advantage in considering questions involving these published estimates if the basis for this $20 price or royalty could be made more specific.

Under present conditions, or such as can be reasonably foreseen, no such royalty is possible except in extraordinarily favorable circumstances. Efforts which have been made to derive a satisfactory revenue from existing powers do not justify any such prospect. The many and various practical difficulties in exploiting these powers are rarely appreciated by those who have not encountered them in actual experience. The cost of water-power development is restricted to narrow limits, if it is to compete with coal. An engineer of high standing whose life work has been connected with water-power development says:

"I am advised that, with good coal at $2 per ton in this territory, the cost of fuel per horsepower per annum (three hundred days of twenty-four hours each) is less than $8 for producer gas engines and for steam power about $12.50 in large size equipments. In many localities coal will cost even less than $2 per ton, allowing thus a still wider margin. If we now consider the usual and unavoidable handicaps and incumbrances to all water-power installations, such as floods, low water, ice flow, back water, etc., we have conditions which will make it a serious study for any power consumer to determine if the balance is not considerably against water power in that particular territory, at this time, from a purely commercial standpoint. At any rate it must be obvious that no such rate as $20 per annum per horsepower can be paid to the Government by any power user for the right to draw the water only, and, besides this, stand the expense of installing and operating the water plant."

Another hydraulic engineer of national reputation says:

"I think that as a general proposition the suggestion that all water powers to which the Government consents should pay royalties, and especially where the parties own their riparian rights, would tend to defeat the development of most water powers and would certainly very much curtail the number of water-power developments. I am impressed with these conclusions because of the present difficulties in financing good water-power propositions."

In Power, May 19, 1908, is an article by Henry Docker Jackson, in which a critical comparison is made between steam and water power. In this article occur the following tabulated estimates of cost of installation and of annual operation, based upon a (theoretical) installation of 1,000 horsepower. The costs are averages of a number of different plants:

Plant cost.

Plant.	Steam.	Water.
Building and works	$10,000	$77,000
Engines, boiler, etc	48,000	----------
Turbines and generators	15,000	17,000
Transportation lines, etc., 20 miles	----------	40,000
Total	73,000	134,000

Fixed charges.

Interest	$3,650	$6,700
Fuel, $2.50 per ton	6,160	----------
Water	600	----------
Operation	3,400	3,800
Oil, waste, etc	770	500
Maintenance	1,500	2,680
Depreciation	3,650	3,500
Taxes	1,460	2,680
Insurance	650	----------
Total	21,840	19,860

NOTE.—Cost per indicated horsepower per year: Steam, $21.84; water, $19.86.

Cost per horsepower.

	Steam, 88 per cent.	Water, 95 per cent.
100 per cent load factor	$24.82	$20.90
75 per cent load factor	39.92	32.00
50 per cent load factor	54.60	45.00

From the last part of these tables it is very evident that a royalty of $20 per horsepower would turn the scale wholly in favor of steam under all conditions of load. In fact, it is reasonably certain that $5 per horsepower per annum would be an outside figure, and even this would often be prohibitory. The

[a] There has recently been invented a device called a "fall increaser," an adaptation of the Venturi meter, by Clemens Herschel, Member American Society Civil Engineers, which promises to utilize the extra flow of streams in time of flood water and low heads to increase and maintain the head upon the wheels. If this invention proves a success, as seems probable, it will be an immense gain to all water powers of low head subject to large fluctuation, as would doubtless be the case in very many of those under consideration.

[b] On the Youghiogheny alone, where it is proposed to install a slack-water system comprising three locks and dams, at an expense of $600,000, proper development of storage will insure the production of a minimum of 4,100 horsepower, the value of which, reckoned on the exceedingly low price of $20 per horsepower year, would produce a total income of $82,000.

situation will not necessarily be improved by the growing demand for power, but rather by the diminishing supply and increased cost of fuel. So long as coal can be had for anything like present rates, no very great charge can be realized from water power wherever fuel is readily available. Under present conditions $120 per horsepower may be considered as an average limit for first cost of a water-power plant, if it is to compete with steam. A charge of $20 per horsepower per annum would be equivalent to doubling this first cost.[a]

A variable element in the cost of water-power development is the distance from plant to market, or the length of the transmission line. When this is very great, as in numerous plants in the mountain districts of the West, it makes a large addition to cost of installation, and must correspondingly reduce the royalty that could be paid for the power itself.

An interesting example of what the Forestry Service has been able to do in this line with unimproved water powers is that of a recent permit for the development of a large power in the Cascade Mountains within the forest reserve. The beneficiary of the privilege is required to pay annually for "conservation," 10 cents per 1,000 kilowatt-hours—equivalent to 65 cents per horsepower per year continuous running. The right is retained by the Government to increase this charge 25 per cent every five years for a period of forty years, after which the whole arrangement may be readjusted. The maximum charge at the end of the forty years will therefore not exceed $4 per horsepower.

The only way in which a rental of $20 per horsepower can be obtained with any degree of certainty, and that in only a small proportion of the localities for many years to come, is for the Government to build the plants. It is admitted that this suggestion will grate harshly on many ears because of its newness and its departure from the established ideas. But a little consideration will show it to be not only the best way for both private and public interests, but really the only practicable way. This may be illustrated by a concrete example:

The Government has just completed a survey and adopted a project for the construction of what is known as the "Lake Washington Canal," in the city of Seattle. It is a canal to connect Lakes Union and Washington with Puget Sound. The discharge from the tributary watershed which will flow through the canal averages about 1,500 cubic feet per second. The mean fall at the lock site is about 15 feet. The theoretical energy is about 2,500 horsepower, but owing to the tidal fluctuation and variations of flow with the seasons (which can not be wholly eliminated on account of the necessity of limiting fluctuations of level in the lakes to about 3 feet) and also to the requirements for canal power, lockage, and leakage, it was thought that about only 1,000 horsepower could be depended upon with certainty for outside use. As this power is located in the heart of a great city, it seemed as if it ought to be turned to good account in helping bear the cost of maintaining the canal. Efforts to obtain tentative propositions for developing this power were, however, wholly fruitless. The plan was then considered of having the Government build the plant and lease it to consumers of power. On this basis a tentative offer was obtained from a responsible consumer to take the plant, operate it, keep up all repairs, and pay the Government $18 per horsepower year. Probably by the time the canal is completed a figure of $25 can be obtained, and as more than 1,000 horsepower will probably be developed it is likely that the Government will receive upward of $30,000 per year for this power—enough to pay the entire cost of operating the canal. The extra cost to the project of adopting the power-plant feature is $220,000, so that the revenue will be nearly 14 per cent upon the expenditure.

In recommending this plan to the department it was pointed out that the true advantage of the Government, even apart from the revenue expected, favored its adoption. It simplified the whole relation between the Government and the consumer. If private interests were to build the plant they would acquire vested rights which would always stand in the way of future control and lead to complications if it should become necessary to terminate the arrangement. With the plant in the possession of the Government and the users standing simply in the relation of lessees for a limited period, without great initial expense on their part, and with freedom on the part of the Government to control the arrangement without the complication of private ownership, the whole plan would stand on a simple, practical, business basis. This view prevailed with the department and is now before Congress for adoption, being possibly a departure in this line.

The principle involved in this case should be given general application. In addition to avoiding complications with private ownership, there are other important considerations. When a power is developed or a reservoir built, it should be so planned from the start as to bring out its full possibilities. A private company can rarely do this. Generally its scheme does not require it nor its resources permit; but a site once occupied by an inferior work may be perpetually barred from complete development. Moreover, in any such work the Government can derive a greater benefit than any private individual or association. A private company must build for the immediate future; it can not wait long for dividends and it can generally realize only on such application of the power as is possible in the immediate vicinity. The Government, on the other hand, derives all the benefits which come from the stored water anywhere on its course from the reservoir to sea. These benefits arise from all the powers through which the water flows, from the improvement of navigation and the prevention of floods, and from every other use to which the water can be put. Furthermore, the Government is building for all time, while the individual builds only for the present and near future. The case is similar to that of landlord and tenant. A tenant can not afford to make improvements on the farm because it is not his and he may remain on it only a short time. The most he can do is to get out of the farm what he can in its actual condition. The owner, on the other hand, can put in improvements which yield him no immediate return because he holds the property long enough to realize upon them. So it is with the Government; it can wait for realization upon its improvements much longer than a private company. In forestry, for example, no individual can afford to wait from three to ten generations for a crop. Only the Government or a great railroad corporation can do this. Likewise, in building great reservoirs no private company can build for the distant future. It is only the landlord that can make such far-reaching improvements upon his estate.

Wherever, therefore, there arises any real demand for power development at the site of any government work, as a lock and dam, the judicious course would seem to be for the Government to prepare a comprehensive plan for development capable of being carried out progressively as the market for power may justify. Let it then build the plant as fast as needed and lease it to private agencies under suitable restrictions. Likewise, when the building of a reservoir promises to be of obvious utility, and the conditions are such as to make it properly a subject of government adoption, let the Government build it, utilizing the water in its own plants below and collecting a revenue from private plants that may use it. Whenever at the time of construction there is a direct return in sight of 2 or 3 per cent, it should be considered justifiable from a government point of view. The certain enhancement in the future value of such utilities and the incidental advantages in flood protection and navigation make this a conservative proposition.

That difficulties will be encountered in deriving the full return from its work to which the Government would be entitled can not be denied. This would be the case particularly wherever it is a question of compelling existing power plants to pay for the extra water they might receive through government storage. This question came up before the Mississippi reservoir board in regard to the powers at St. Anthonys Falls which derive such benefit from the reservoirs. The board remarked as follows on the subject:

"It may be urged that if the incidental benefits of the reservoirs to the water-power interests are so great, these interests should be required to contribute something to the maintenance of the system. There would doubtless be a willingness to do this if a satisfactory method could be found. But there is no practicable method of enforcing any charge upon the use of this water. Where water is taken in a separate channel from above a dam or lock and conducted to a mill, it is a simple thing to measure it and to cut it off if it is not paid for. But when it must be let into a natural stream, where it mingles with the run-off from below, it is impossible to determine what proportion of stored water the mill may be using, or to enforce its nonuse if not paid for. But, if such an arrangement is not practicable, that fact does not constitute an argument against the reservoir system. So long as the reservoirs are performing the service for which they were created, every additional benefit derived from them is only an additional argument in their favor."

These disadvantages will adjust themselves in time.

Such, in the opinion of the author, must be the basis of any great reservoir system in our country—industrial use. Even in

[a] Mr. Leighton cites the Falls of the Ohio as an example of an opportunity to develop 110,000 horsepower by aid of his proposed reservoir regulation. This he states, at $20 per horsepower, is 3 per cent interest on $73,000,000. To anyone familiar with the physical conditions involved in the development of this power it will appear extremely doubtful if any company could guarantee to deliver continuously this amount of power, even with the full aid of reservoir regulation, and pay any royalty whatever.

the uniquely favorable conditions at the headwaters of the Mississippi, no one can doubt that the real purpose being served is that of mill power, whatever the theory upon which the reservoirs were built. The great system of the Far West is being built for irrigation, power, and domestic supply. So on the Ohio and other eastern streams, the system must rest upon an industrial basis and expand only as industrial demands justify. The innovation involved in building reservoirs with public funds for these uses is admitted; but it is no greater than it was ten years ago to build them for irrigation. When the author was investigating that subject in 1896–97, he found a widespread opposition throughout the arid regions against government control of irrigation works in any way, and in his report he went no further than to advise the building of reservoirs for giving the people more water, leaving its distribution exactly as it was before. Yet in the short space of ten years public sentiment has completely changed, and to-day no one questions the wisdom of the broader plan upon which these works are being carried out. So it will surely be in regard to reservoirs in all other parts of the country. The principle is the same. It may be accepted that only the General Government can do this work in the comprehensive way in which it ought to be done, because only the Government can reap all the benefits; only the Government can wait the long periods necessary for full returns; and only the Government has the necessary resources to make expenditures on the required scale. These points will not be enlarged upon, and the many and cogent reasons why this is so will not be given. The trend of public thought is all in that direction. The old idea that the Government can not execute great works or small as cheaply, efficiently, and expeditiously as private agencies is fast being dispelled, and the vast benefits which the people derive from public control of important enterprises are coming into fuller recognition all the time.

The foregoing remarks should not be construed as in any way rejecting the idea of local help by States, counties, cities, or even private agencies. It often happens that public works have a special local importance in addition to their public value. It is just and proper in such cases that local aid be given. This principle is now fully incorporated in river and harbor legislation. For example, the Lake Washington Canal, which will be of very great local importance to the city of Seattle, is a joint enterprise between the Government and the city, the latter paying fully one-third of the cost. The cooperation between the United States Geological Survey and the several States in preparing a contour map of the country is an example on a large scale. The principle ought to find an extensive application in the establishment of national forests throughout the country.

CONCLUSION.

This paper will be closed with some reference to the relation of navigation to other uses of our streams, and to certain legal obstacles that stand in the way of comprehensive measures. That the improvement of our inland waterways should be organized upon a more rational system than it has ever been; that the reciprocal relation between navigation, water power, etc., should be given practical recognition; above all, that the prosecution of these works should be placed upon the same sure basis as is the construction of the Panama Canal, with positive assurance that, when once commenced, funds will be forthcoming for their prompt completion, would seem to admit of no doubt. How far navigation should be correlated, in improvement work, with other uses of the streams, is an open question. Water power and navigation are in many cases so closely related that they will have to be considered together. In regard to soil wash, no such intimate relation exists. To whatever extent soil erosion now exceeds that of former times, it relates almost exclusively to cultivation and has no appreciable influence upon the channels. Its control is of far greater importance to agriculture than it is to navigation. This is also true of irrigation, which, so far as it affects navigation at all, affects it injuriously. If the development of irrigation is ever carried to the length that we hope it may be, it will cause a heavy drain upon the low-water flow of the Missouri, Sacramento, San Joaquin, and the Columbia rivers (not important as to this stream), the only navigable waterways of consequence that are affected by it. Except for this fact of drawing water from the streams, irrigation has no relation to navigation.

Forestry, irrigation, and prevention of soil wash are all related to the conservation of the vegetable resources of the country. They are kindred purposes and should naturally fall under the same administrative control. Navigation is a function of transportation, which is a very different subject. Water power is becoming more and more closely related to it, and these two subjects naturally go together. It must not be expected that the character of works for river regulation can be materially changed by means of reservoirs, forests, or soil-wash prevention. Levees and bank protection, locks and dams, dikes, and dredging will continue to be standard methods of river improvement in the future as in the past. The accumulated experience of centuries in all civilized countries can not be set aside in a moment. In particular, flood protection is not likely ever to find any complete substitute for levees. They have been used extensively the world over throughout recorded history. People who think only of the Mississippi and the Po, when levees are mentioned, little understand to what an extent "diking" is resorted to wherever rich bottom lands have to be guarded against floods or tides. Some of the finest agricultural lands in the world are behind levees, where almost perfect security is felt. No class of river control is in more extensive use, none is better understood, and from none has the world, throughout its history, derived greater security and benefit.

Municipalities, like Pittsburg, Cincinnati, and Kansas City, must look in the main to their own efforts for protection against floods. In particular they must reject absolutely the delusive promises of forestry. These cities are trespassers upon grounds dedicated by nature to a condition of overflow. They have occupied these grounds and placed themselves in the way of the floods deliberately and with their eyes open. They have gone further than this, and in many instances have encroached upon the channels and have thus made the floods worse than they used to be. It is not for them now to look for outside deliverance, but they themselves should grapple courageously with the problem. In most cases these problems admit, if not of complete solution, at least of a very large measure of relief. The maxim that "Providence helps them who help themselves" may also apply to the Government. Cooperation in connection with its regular work, either in channel improvement or in the building of reservoirs, would doubtless be given. The disposition which must be met and overcome is to let things go as they are, trusting blindly to chance to deal more kindly in the future. This supineness of spirit and the enervating reliance upon indefinite future relief through the agency of the Government must be replaced by self-reliance, and these great industrial centers must rise in their own might and free themselves from their bondage to these ever-recurring catastrophes. In Boston, Chicago, Galveston, San Francisco, and even that lusty young giant of the Northwest, Seattle, are examples enough of what an aroused civic spirit can do in the direction of self-aid.[a]

The part that reservoirs will play in the larger problems of channel improvement and flood control on the great rivers will be in the nature of an insurance. Every cubic foot of water taken from the crest of a flood and released when the rivers are lowest is pro tanto a benefit. If the great floods of the Mississippi can be cut down by so much as a foot through reservoir storage, it will be an immense gain; and the same will be true if the low-water stages can be increased by 2 or 3 feet. Whether the much greater results expected by Mr. Leighton can ever be realized is a question which the future alone can determine.

A word, finally, concerning the legal obstacles in the way of a broad government policy looking to the development of national forests, and the storage of water on an extensive scale. The expansion of government work into fields of obvious utility is often blocked by the structure of our Government through the bar of constitutional prohibition or at least lack of power. It is said that the purchase of lands for the rearing of forests for timber alone is unconstitutional, and that the same is true of the storage of water for any other purpose than navigation; and yet, forests for timber and reservoirs for power must always remain the real justification for public expenditure along these lines. To the average understanding the distinction between things constitutional and things unconstitutional is often hard to discern. The Government is now expending millions in storing water and conducting it upon land whereby the products of the soil may be obtained. It is applying this water to both public and private land, or to lands that were in private ownership when the projects began. Is there any real difference between providing the power to raise sugar beets, for instance, and that for manufacturing them into form for human consump-

[a] The author is not closely familiar with the situation at Pittsburg and Cincinnati, but he is familiar with that at the two Kansas Citys, where, in 1903, the greatest loss occurred that any American city ever sustained at the hands of a river flood. He speaks from the results of careful study on the ground when he states with the utmost positiveness that, for approximately $10,000,000, with such aid as might reasonably be expected from the Government on the Missouri River front, the flood problem of the Kaw and Missouri in that hive of industrial enterprise known as the "West Bottoms" can be solved absolutely; the too small area of these bottoms can be increased by upward of 200 acres; two-thirds of the bridges in the same area can be eliminated; that prodigious barrier to free movement—the Kaw River—can be practically removed or placed where it will not be in the way; and the general situation can be so improved that the resulting benefits, wholly apart from that of flood protection, would be well worth the cost.

tion and transporting them to the consumer? Are not the last-mentioned purposes quite as necessary as the first?[a] And again, is there any distinction in principle between improving a river so that boats can navigate it and improving it so that it may provide power that will transport produce by land as well as by water?

Again, the Government has accepted gifts of land like the Yosemite Valley and the Muir redwood grove, to be given over to the enjoyment of the people and involving perpetual expenditures for mainfenance in the future. It has traded lands of its own for lands with which it has parted ownership. It reserves vast areas to-day which might be private lands to-morrow. What is the distinction of principle between doing all these things and buying outright lands that are needed for the same or similar purposes? They are distinctions without real differences. They concern the letter and not the spirit, and they can not stand whenever the interests of the public really demand their abrogation.

Still, it is probably a fact that federal authority to buy lands for forest culture alone and to create reservoirs for industrial use exclusively would be considered by the courts as transcending the power of Congress under the Constitution, and it is this fact that forces those who believe in having the Government do these things to strain the truth by attempting to prove that they are necessary for navigation and for the prevention of floods. It enforces a policy of indirection instead of permitting these things to be done squarely for their real purpose and as a matter of right. In his address before the Judiciary Committee, in its hearing on the Appalachian bill, Mr. Pinchot stated that that proposition must stand or fall upon the theory that the forests regulate stream flow, and are therefore useful to navigation. Did he not refer to the particular point here under consideration, that on any other theory the measure would be unconstitutional? Surely he did not mean that the cause of forestry itself must stand or fall upon any such issue.

Does not this situation suggest the necessity for an important initial step which shall sweep away these artificial barriers and let these great questions stand or fall on their intrinsic merit? If the upbuilding of new forests, if the storing of our flood waters, are necessary measures for the welfare of the Nation, the way should be cleared for their accomplishment. There may be differences of opinion about amending the Constitution in the interest of uniform divorce laws, popular election of Senators, and the like; but if we may judge from the universal agreement upon the particular subjects here considered, every State in the Union would ratify an amendment giving to Congress the power to legislate for the conservation and development of the natural resources of the country.

The author should possibly state, in justice to the official body of engineers to which he belongs, that the arguments presented in the foregoing paper are his individual opinions only. He is not acquainted with the views of any other officer upon the subjects treated, except as he has seen them expressed in official reports or in the public press.

Mr. SCOTT. Mr. Chairman, I would like to inquire how much time remains to this side?

The CHAIRMAN. The gentleman from Kansas has seventy-three minutes remaining.

Mr. SCOTT. I yield thirty minutes to the gentleman from Wyoming [Mr. MONDELL].

The CHAIRMAN. The gentleman from Wyoming is recognized for thirty minutes.

Mr. MONDELL. Mr. Chairman, in these days of rampant paternalism, when pretended apostles of individualism and states rights not only accept but applaud and pursue every federal encroachment on the domain of state authority and every project of state socialism which is sugar coated with an appropriation, when a period of somewhat thoughtless indifference of the limitations of natural resources has been followed by a carefully nurtured and somewhat hysterical sentiment for so-called "conservation," anyone who presumes to discuss the Forestry Service otherwise than in terms of the most extravagant laudation is certain to be misunderstood, misinterpreted, and roundly abused. Furthermore, I realize that to one in legislative life the pathway of concord and harmony with powerful governmental agencies is the way of peace and prosperity, and it is with a full realization of these facts that I shall say what I feel it is my duty to say with regard to the Forestry Service.

Mr. BARTLETT of Georgia. Mr. Chairman——

Mr. MONDELL. I wish I could yield to the gentleman, but I have only limited time.

[a] It has even been hinted by high judicial authority that the reclamation act itself would not stand the test of constitutionality if brought into court.

Mr. BARTLETT of Georgia. I want to ask the gentleman to except some of the southern Representatives from being in favor of that measure.

Mr. MONDELL. With great pleasure. I know that the gentleman from Georgia has always been a good Democrat in that as in all respects.

Mr. DRISCOLL. And is consistent.

Mr. MONDELL. He is consistent always.

I feel somewhat responsible for this service, because I was the author of the bill that transferred the forest reserves from the Interior to the Agricultural Department, and I labored earnestly for that consummation with confidence—at least, with hope and faith—in the assurances of certain distinguished gentlemen that the resulting consolidation of government agencies having to do with the advancement and promotion of forestry would be in the interest of economy and good service and would remove certain friction over forestry matters existing between the Agricultural and Interior departments, a friction partly inevitable to a divided jurisdiction, but which some people were unkind enough to suggest was due in a larger measure to the ambition of the one department to force the other from the jurisdiction it coveted; however that may be, it was in the hope of rescuing the western people from beneath the upper and nether millstones of rival jurisdictions and in faith of promises of economy and fair and reasonable administration that the transfer was made.

I fully realize that there are those here and elsewhere who, in view of the disappointment of honest and reasonable hopes and expectations, could, if they were disposed to, register a very emphatic "I told you so," in view of the fact that an expenditure of $350,000 per annum for the administration of 85,000,000 acres of forest reserve by the Interior Department has increased to an expenditure of $3,896,200 the present fiscal year for the administration of 151,000,000 acres and a proposed expenditure of $4,646,000 for the administration of 168,000,000 acres during the next fiscal year, not to mention the expenditure of $600,000 this year and a proposed expenditure of an equal amount next year for so-called "permanent improvements."

The true bureaucrat measures his own importance and lays his claim to fame on the amount of money the expenditure of which he controls, and particularly by the amount in lump-sum appropriations, and on the extent of territory and the importance of the interests over which he exercises autocratic control. Judged by these standards, the Forestry Bureau ranks high—in fact, in extent of autocratic power it has no rival under our flag. I doubt if it has in any civil administrative bureau anywhere outside of Russia.

This is true so far as the character of the control is concerned not so much by reason of statute as of rules and regulations, as to the legality of the most oppressive of which, by the exercise of extraordinary—if it were not unparliamentary I should be tempted to say devilish—ingenuity, it has through its advantages as a government agency succeeded in avoiding direct issue in the cases which have been brought before the courts.

Ours has come to be the most expensive Government under the sun, and is fast becoming bureaucratic enough to suit the most exacting believer in autocratic government. I do not expect those who hail from east of the Missouri to accept this except as a figure of speech, for one must live beyond the Big Muddy to fully realize how far we have progressed in the direction of an autocracy that is far from being benevolent, and one must wander on and about a western forest reserve to realize the full import of the situation, for whatever may be said with regard to other lines of federal activity, one can truthfully give the palm to the Forestry Service for extravagance of expenditure and real mediæval bureaucracy.

I have not the time in the course of a brief speech to go into any considerable detail as to the character of the unnecessary and extravagant expenditures of this bureau. A mere statement of the sum of its expenditure is sufficient, particularly when one realizes that with the modest expenditure of $350,000 the Interior Department not only protected the forests from fire but made a reasonably satisfactory start in the matter of improving the reserves.

EXTRAVAGANT EXPENDITURES.

During the past year the Forestry Service—let us hope within its authority, but without specific authorization of law—established six elaborate and expensive administrative district headquarters. Possibly it was wise from the standpoint of efficiency to establish administrative districts. In a proper way and along proper lines I am inclined to think that may be true, but what was done was peculiarly in line with the policy of the Forestry Service, which is to increase its lump-sum appropriation and

decrease its statutory roll and to increase its prestige and influence without regard to expense.

The change in policy gave an excuse for the reduction of the statutory roll in Washington, but actually resulted in an increase in the cost of the purely office force of the Forestry Bureau in Washington and at the division headquarters in the sum of $755,300, besides an estimated increase of a large amount for rent, according to the figures given by the bureau in its estimates for the present and for the coming fiscal year.

The estimates for the clerical forces of the six district headquarters for the next fiscal year amounts to $835,360. This enormous expenditure might be partly justified if it led to anything like a corresponding decrease in expenditures elsewhere; but there is no such corresponding decrease, for the estimate for the Washington office for the next year is only $81,060 less than the estimate for the same office for the present fiscal year, leaving a net increase in proposed expenditures for the office force of $755,300, as I have stated. No wonder the bureau clamored for an increase of $1,500,000 in its appropriation.

The committee has given the bureau an increase of $750,000 in this bill over the appropriation for last year, and this is claimed to have been made necessary by the addition of 17,000,000 acres to the area of the forests. In view of the fact that, according to the bureau's own statements, but little supervision is given to additional territory the first year, it would hardly seem necessary to greatly increase the appropriation for this reason; but assuming that it is to cost as much to administer this 17,000,000 acres as it is claimed to have cost to administer the balance of the reserves, or about 1 cent an acre, $170,000, rather than $750,000, would be the amount to add. But assuming that this additional territory is to cost as much per acre for all purposes as the entire acreage of the reserves did last year, the increased appropriation should not have been $750,000, but less than $450,000.

The fact is that this increased appropriation is intended to cover the increased cost not for work upon, nor for protection of, the forests, but for the maintenance of elaborate and expensive division headquarters, with very high-salaried superintendents and assistant superintendents and aids and assistants of all kinds and character paid for out of the lump-sum appropriation. Under it, any kind and any number of salaries can be paid.

However, inasmuch as it is hoped that the establishment of these headquarters will have some little influence in stemming the tide of popular opposition to certain policies of the bureau, at least in the immediate localities in which they are situated, and as Uncle Sam is rich, and in any event the West will eventually have to pay the fiddler, they are, no doubt, considered worth all they cost.

I was much interested in reading the statement of the Chief Forester before the Agricultural Committee in regard to the provision which was made in the appropriation bill last year on my motion intended to limit and restrict the Forestry Service in its policy of self-laudation, on the one hand, and of criticism and condemnation of those who did not find favor in the eyes of the bureau, on the other, through its well-regulated publicity bureau, and I was not greatly surprised to find that after considering the matter and consulting with the Attorney-General they concluded to and did continue to do just what they had been doing before.

My notion is, however, that they have not done all of the things that were done before that provision was adopted. However, evidently the bureau expects to have a good deal of laudatory advertising work to do with its typewriters the coming year, for I notice that the forests are to be protected and conserved, and the stream flow of the country regulated, through the use of $34,620 worth of typewriters, which they estimate as necessary for their needs, though in order to keep these busy it is expected to use only $16,000 worth of paper, though $22,000 worth of envelopes are to be used to inclose the same, and $7,000 worth of card indexes are supposed to be required to keep track of the correspondence.

It has long been a standing joke in the West that many of the gentlemen imported by the Forest Service, at high salaries, from eastern forestry schools, require a guide whenever they go into the woods. Evidently the service is trying to meet this unfortunate condition of affairs, for it expects to use $10,000 worth of compasses the coming fiscal year. When they have purchased the $6,000 worth of field glasses, which they anticipate the need of in their estimates, I am very much in hopes they will be able to see some of the homeseekers on and about who now seem invisible to the gentlemen of the service.

From the standpoint of the West, and I believe from the standpoint of good government everywhere, there are serious objections to unnecessary and extravagant expenditures beside that of the drain on the Treasury at a time when we are facing a deficit. First, extravagance in one branch of the Government breeds extravagance on all others that come in contact with it, and the high salaries which are certain to be paid, and the extravagant expenditures which seem to be inevitable, under lump-sum appropriations, breed discontent and dissatisfaction in other branches of the government service which are cognizant of them.

An extravagant service puts on airs among its fellows, attracts their best men, renders discontented those less fortunate, and breeds dissatisfaction even in the service itself when, as in the case of the Forestry Service, the high salaries and the pleasing employment go to the favored of the service, leaving those actually engaged in its hard work in many instances grievously underpaid. Second, enormous lump-sum appropriations, under the best administration, are bound to be misapplied in some instances, and to be used without the care and economy that guards a specific appropriation; and the temptation is constantly present to use them in every way possible within the most liberal construction of authority for the purpose of building up not only the present plant, plan, and purpose of the bureau, but in furthering its future plans, purposes, and ambitions.

That the Forestry Service has done this there can be no question. It has been the advocate, champion, and promoter of the most extreme policies of federal expenditures and of the extension of federal jurisdiction and control that has been proposed by anyone, including the proposal to purchase unlimited areas of private lands within Eastern States for the purpose of putting them under exclusive federal jurisdiction, and the proposition for the federal control of every use of the public lands pending their absorption into private ownership, or rather with a view of retarding such absorption. No fad or scheme having for its purpose the expenditure of public cash for the extension of federal authority but has had its support within the limitations set by the accounting officers of the Treasury, and as a corollary of this situation the service has had the devoted and unquestioning support of all the advocates of these various projects.

PLOWING WITH THE BUREAU HEIFER.

One of the most tempting and absorbing games of the day is that of plowing every stony and questionable field within which federal appropriations and federal activities are invited with the government bureau heifer. The bureau is always a "Barkis," if the effort promises vast stores of succulent governmental appropriation provender, and the game is always in full swing, Sundays and holidays not excepted, on the back lot, and sometimes in the front yard, of every bureau flush with millions of federal cash in a lump-sum appropriation; and, unfortunately for the public good, too often both the bureau and the other interested party wins. Alas, in many quarters it is considered extremely impolite, not to say impertinent, by both parties in interest to have anyone suggest that the poor old Constitution and the now somewhat emaciated Treasury, neither of which have any friends with either crowd, are sure to get the worst of it.

From the standpoint of the West, particularly, the constantly increasing extravagance of the Forestry Bureau is a direct menace in that the rather curious view has been adopted that while the country as a whole bears the cost of other great national undertakings, the people in the West must eventually bear the load of the forest reserves. In fact, the brethren of New England and the Southern Appalachians are now looking with covetous eyes upon western forest lands as a source from which to draw the vast expenditures they contemplate laying upon the Federal Government for undertakings which no self-respecting Commonwealth ought to ask any assistance in.

When the forests were transferred to the Agricultural Department one of the claims made, and if I recollect rightly, one of the assurances given, was that the service would soon be self-supporting. On the contrary, the gap between income and expenditure has been constantly widening, in spite of the fact that in localities where there is a demand for timber the bureau has been depleting the forests much more rapidly than they have ever been depleted in the past. In one reserve in my State a virgin forest which required from one hundred and fifty to two hundred years to attain its growth is being cut at a rate that will exhaust all of the available matured and maturing timber in less than ten years. I do not pretend to say that this forest is being cut too rapidly. It is true, however, that when it is cut its like can not be again harvested on the same ground for a hundred years at least.

With the growth of forestry expenditures the demand for a larger revenue will increase, and what shall be done to make a reserve such as I have mentioned pay its proportion of the

extravagant office and general expenses of the service during the century that it is reforesting? I have no doubt but what the Forestry Service will be ingenious enough to secure the revenue by laying a burden on every industry and every use of the reserve. Already the foundations of these charges are being laid in the revocable permits being granted, oftentimes for purposes for which Congress has granted a permanent right of way, in the attempt to lay a toll upon the use of water and to hamper and restrict the acquirement of every right that will not pay tribute to a federal landlord.

I hear surprise expressed that a western man should object to large federal expenditure in his region. Some of the brethren are so enamored, as we all are inclined to be, of federal expenditures in the territory they represent that they can not realize why we do not welcome these expenditures. If every dollar spent for rivers and harbors or public buildings or military posts fastened more firmly an arbitrary control not necessary to the accomplishment of any proper public purpose, and threatened an ultimate toll running through all time, the appropriation might not be so welcome.

Every dollar unnecessarily expended by the Forest Service increases the pressure on the service to obtain additional revenue, and while for the time being, under constant fire of criticism, they have not increased their charges, and in some instances have slightly decreased them, they are more confidently than ever insisting upon the right to revenue from every source and laying the plans to secure it. They now deny the right of a settler to the free use of a handful of timber, though they still grudgingly give it to him as an act of grace, but surround the taking of it with miles of red tape.

I look from my dooryard, when at home, over a wide expanse of forest reserve, with millions of feet of timber dying and menacing the surrounding territory with fire and the spread of the beetle that has wrought destruction there, so bound round with red tape of administration or held at such a price that there is little incentive to remove it. All attempts to secure some of it for firewood, coupled with an offer to pay the price asked, was met with the fixing of such conditions as to make it impossible to utilize it, and there it rots.

On the same reserve settlers attempting to secure a foothold in open mountain valleys, where their presence would, in the language of the forester, be a benefit to and lend security to the forest, are met with tedious delays, though the bureau has a corps of high-salaried officers to meet such cases, and ultimately are subjected to an expense of all the way from $75 to $150 for the survey of their little mountain farms amid the snows. The Forestry Service may say it is not responsible for this expense. From a thorough knowledge of the situation, I have no doubt but that if the service took an interest in the matter the expense could be reduced one-half—probably more—but the officials of the department are too busy establishing elaborate headquarters, following fads, arranging conservation conventions from Canada to Mexico, making extensive tours in the interest of the uplift of the farmer to have any time for these struggling frontiersmen attempting to get a foothold in the soil and establish American homes in the wilderness.

GOVERNMENT MONOPOLY.

Quite recently the Chief Forester stated before the Agricultural Committee that the service was not taking advantage of the government ownership of all the forests in certain districts to secure a high price for stumpage. This is a statement which we can all approve, but it is unfortunate, both for the Forestry Service and the people who use the products of the reserves, that this fair policy is not generally followed. If it were, there would not be a price of $1 to $1.50 a thousand for stumpage in districts where the Government owns but a limited portion of the timber supply and of $5 or more per thousand in districts where the Government has a monopoly of all the timber. Why should the people of Wyoming pay $4 or $5 a thousand more for their lumber because the Government owns the timber supply and has a monopoly in certain parts of the State than in Oregon and Washington, where the government monopoly is tempered by private ownership? Why do my constituents in a part of the State where the Government has practically a monopoly in timber pay such price as competition fixes above a minimum of $5 per thousand, fixed by the government monopoly—the Forest Service—when my neighbors in the vicinity of my own town pay but $1 to $1.50 a thousand stumpage for timber cut from state and privately owned lands? And yet they tell us the Government does not avail itself of its opportunities as a monopolist of timber.

Thanks to the criticism and the ridicule that have been heaped on the absurd requirements as to piling and burning of brush, fixed by some of the dude inspectors of the service, the practice in this direction has become somewhat more sensible and reasonable, though in some regions the Bourbon theorists of the service yet have much to learn in this direction.

The Forest Service estimates that one-third of the area included in the national reserves is unforested. I will not pretend to say that this is not a fair estimate for the forest reserves as a whole, for there are a number of them with which I am not at all familiar; but in the Rocky Mountain region—at any rate in Wyoming—the proportion of unforested lands is much greater. I think it is safe to say that 60 per cent of the area of the forest reserves in our State contains no timber at all, and a large proportion of this 60 per cent is in no way adapted to the growing of timber.

The result of the inclusion of this vast area of nontimbered land in the reserves is that the so-called "forest reserves" are many of them grazing rather than forest reserves, as is indicated by the fact that the receipts for grazing during the past fiscal year exceeded the receipts for the sale of timber by more than $100,000; and it is over the use of these grazing lands that a large amount of the friction prevailing throughout the West occurs.

Much of this friction could have been avoided and can be overcome by excluding from the reserves nontimbered land wherever possible. But this is not in accordance with the policy of the bureau, which is to extend its jurisdiction as widely as possible, not only over forest lands and lands that may be forested, but over lands that are to remain perpetual grazing lands.

It is true that under strong pressure the bureau did reduce the grazing fees in some instances the past season, but there is almost universal complaint, in my State, at least, and I think largely elsewhere throughout the West, that discrimination and favoritism are practiced as between classes of live stock and individuals; that vast areas of fine mountain grasses are not utilized at all, but are allowed to become a menace through the opportunity afforded for the spread of fires, because the Forest Service has a habit of assigning certain territory to the use of certain kinds of live stock and of keeping all other kinds out when there is not sufficient numbers of the kind of stock assigned to utilize the grasses or the conditions are such as to make such utilization impossible. There are large areas within the reserves which are grazed but little, if at all; because, while they are ideal pasture for sheep and not at all suited to the pasturage of cattle, the service insists that they shall be pastured by cattle or not at all.

The specific complaints against the Forest Service which come to a western Member of Congress are almost numberless and have to do with every feature of the department's policy. Complaints from settlers who are entitled to the free use of timber for the building of their homes and farms, on the ground that they are either denied the right to use timber or that the opportunity to use it is surrounded by so many exasperating and irritating conditions as to make the right valueless, and this while vast quantities of timber are rotting in the reserves. Complaints come from settlers at some distance from the reserves that they are compelled to pay grazing fees for the stock they turn on the range, because some of them may occasionally stray upon the reserves.

Complaints are made by people in the towns because of the high price of lumber, caused largely on account of the high price of stumpage; by stockmen of favoritism in granting grazing privileges; by miners of the difficulties surrounding the taking and holding of mineral claims; by settlers of the difficulties of the acquisition of homesteads; and while the service does occasionally put forth an effort to satisfy these complaints, in a large number of cases they are met with utter indifference. One great trouble with the Forestry Service is that it has attempted to carry out its policy by securing the aid and support of the high, mighty, and powerful, the influence of associations and corporations, rather than by rendering services that would commend them to the common people.

I note that whatever criticism is made of the service, instead of any effort being made to remedy conditions, the attempt is made to overwhelm and smother, squelch and annihilate the critic by the shopworn, stupid declaration that the people who are objecting to the forestry policy are the men who want to loot the public domain, skin the public range, and rape the public forests. Declarations and denunciations of this kind never settled any question and never will settle this question of the forest policy in the West, a policy now on trial and a policy which, much to the regret of those who believe in the right kind of a forestry policy, grows more unpopular as time passes.

The fact is that the "big interests" have had but little cause to complain, and have had but little complaint of the forestry policy. The live stock association of the country, which represents more big interests than any other, has been favorable to the forestry policy as practiced, and a few days ago passed resolutions to that effect. The Chief Forester a year and a half

or so ago at a western meeting, when asked to pledge himself for free lumber, asked to be excused, on the ground that the lumber interests were all favorable to the forestry policy and he did not care to antagonize them.

Speaking from my own experience, I will say that no one interested in the purchase of timber lands, in the cutting of lumber or any kind of timber on any considerable scale, has ever criticised the Forest Service to me or in my presence, while I have heard criticisms without number from settlers, miners, stock men, and small purchasers or intending purchasers of timber.

The CHAIRMAN. The time of the gentleman from Wyoming has expired.

Mr. SCOTT. Mr. Chairman, I yield ten minutes more to the gentleman from Wyoming.

The CHAIRMAN. The gentleman is recognized for ten minutes.

Mr. MONDELL. Mr. Chairman, this does not surprise anyone who knows anything about the situation. The sale of timber on the forest reserves tends to monopoly. I think I am correct in saying that three concerns, or four at the outside, cut four-fifths of all the timber sold from the forest reserves in my State. I do not mention this in the way of criticism, but rather as a fact to show that the reserves have made possible large operations, and tend to large operations, where small operations were the rule before the reserves were established.

Mr. Chairman, I realize that some criticisms made against the Forest Service are trivial; that some are unreasonable; but making due allowance for all these, there must be something vitally wrong with a system and a policy which constantly grows in disfavor among honest and reasonable men, and no one who knows the situation, in the intermountain West at least, but knows that the Forest Service has grown more and more unpopular as the years have gone by, and yet it is true that some glaring faults have here and there been remedied.

I realize that some friction will always exist; that some dissatisfaction will always be felt with the best regulated system of national forest reserves. A certain amount of that sort of thing is inevitable in a government bureaucracy, but a good deal of it can be eliminated and removed by the inauguration of a reasonable and sensible policy.

WHAT THE SERVICE SHOULD DO.

The first thing the Forest Service ought to do is to eliminate the areas of unforested lands, particularly from around the borders of the reserves. In the second place, it ought to give less attention to a score or more of commissions for the general uplift with which it has been associated, and pay more attention to the forestry business. It ought to stop trying to maintain its popularity by lending a laboring oar to every man's fad and fancy, and by attempting to stand in with great interests, and pay its attention to looking after the common, everyday citizen who lives in and around and adjacent to its reserves. And above all, it ought to cease its propaganda on behalf of a variety of meddlesome, paternalistic, and centralizing schemes and policies which are offensive to a large number of people, and pay more attention to its own particular knitting.

If the Forestry Bureau will follow this advice, discharge about half of its high-salaried chiefs and aids and gentlemen of scientific leisure, it may not be so popular in the East or in certain circles in the West, but it will get along better with the people with whom it has directly to do and in the carrying out of the useful work for which it was established.

I do not promise perfect conditions even then, for national control of large areas of territory within a State is, at best, an evil, and I fear a growing rather than a lessening one, and I am amazed whenever I hear men who ought to realize the blessings of self-government and local control advocating schemes of federalism and paternalism calculated to hatch a crop of evils that are certain to rise up to plague those responsible for them, and, unfortunately, the balance of the community also.

I realize the States have not done their full duty in all respects, but the remedy is not to call upon the Federal Government to do what the State ought to do, but to arouse public opinion to a performance of its duty by the State, and I look confidently forward not to a still further increase of federal control over the region in which I live, but to a gradually increasing state and local control, believing that in such control is the only proper settlement of many of the questions that now vex us.

That the policy of the reservation of western mountainous forested territory and the public control and management of such areas is permanently established no one can doubt. It was a policy deliberately entered upon and well advanced long before those responsible for the present Forestry Service came upon the scene of action, and within reasonable limits it has always had the support of the western people.

No one fully alive to the inevitable effects of bureaucratic control of large areas within States but realizes that such control by federal authorities is not an unmixed blessing by any means, but all of the benefits to the people in a locality and to the country at large, intended or expected from the policy, can be best obtained by limiting the authority and activity of the bureau having control of the reserves to that necessary to carry out the purposes for which the reserves were established.

Unfortunately for the success of the government forestry policy, the present Forestry Bureau insists on establishing over vast areas within sovereign States complete autocratic federal control over all resources, industries, and enterprises without regard to any effect they may have on the maintenance of conditions favorable to the purposes of a correct forestry policy.

In my opinion, one of two policies will eventually be established. Either the Forestry Service will be content with such control as is necessary for the carrying out of the purposes for which it was established or the States will earnestly strive for, and eventually obtain, full ownership and control of the territory now in reserves, and I am inclined to the opinion that the latter will be decided to be the best for the West and for all the country. [Applause.]

MESSAGE FROM THE SENATE.

The committee informally rose; and Mr. GARDNER of Massachusetts having taken the chair as Speaker pro tempore, a message from the Senate, by Mr. Crockett, one of its clerks, announced that the Senate had passed the following concurrent resolution, in which the concurrence of the House of Representatives was requested:

Senate concurrent resolution 85.

Resolved by the Senate (the House of Representatives concurring), That the Secretary of War be, and he is hereby, directed to cause a survey to be made of the harbor at Anacortes, Wash., to determine the cost and advisability of its improvement.

The message also announced that the Senate had insisted upon its amendments to the bill (H. R. 26399) making appropriations to supply urgent deficiencies in the appropriations for the fiscal year ending June 30, 1909, disagreed to by the House of Representatives; had agreed to the conference asked by the House on the disagreeing votes of the two Houses thereon; and had appointed Mr. HALE, Mr. GALLINGER, and Mr. TELLER as the conferees on the part of the Senate.

The message also announced that the Senate had passed bills and joint resolution of the following titles, in which the concurrence of the House of Representatives was requested:

S. 5510. An act for the relief of the owners of the tug *Juno;*

S. 8356. An act to enable the Omaha Indians to protect from overflow their tribal and allotted lands located within the boundaries of any drainage district in Nebraska; and

S. R. 122. Joint resolution to enable the Secretary of the Senate and Clerk of the House of Representatives to pay the necessary expenses of the inaugural ceremonies of the President of the United States March 4, 1909.

AGRICULTURAL APPROPRIATION BILL.

The committee resumed its session.

Mr. SCOTT. Mr. Chairman, the act making appropriation for the Department of Agriculture, although one of the smallest of the great supply bills annually brought before the House, probably attracts more general interest in this Chamber than any other, and its provisions are more closely scrutinized and more carefully discussed. The reason for this is doubtless found in the fact that the activities of the department are so widely extended and touch in a vital way the interests of so large a proportion of our people that nearly every Member upon this floor feels that his own constituents are directly concerned in some one or more provisions of the bill. On account of this widespread interest in the department throughout the country, as well as in this body, I trust it will not be considered out of place if, in presenting this measure, I take occasion to review the work of the past year and direct attention, briefly, to some of the more notable achievements of the various bureaus and offices. As the time which I have reserved for myself is limited, I will ask the indulgence of the committee to be permitted to proceed without interruption until I have completed the statement I desire to make.

THE SOLICITOR.

One of the few promotions recommended by your committee is that of the solicitor, whose salary is increased from $4,000 to $4,500. This increase is recommended partly because $4,500

is the salary paid to the solicitor of other departments, but chiefly because recent legislation has imposed upon this officer duties which have greatly increased his work in volume, importance, and responsibility—work which has been done with very commendable industry and intelligence. During the calendar year 1908 there were handled in the solicitor's office 301 cases under the food and drugs act, 46 under the meat-inspection law, 120 under the cattle-quarantine law, 2 under the Alaska game law, 699 under the 28-hour law, and 78 in connection with the national forests.

In all, 1,252 cases were reported or determined during the year, and fines and penalties aggregating nearly $70,000 were recovered. The constitutionality of the food and drugs act has been tested and upheld, and the courts have sustained the department in seizing and destroying goods transported in violation of that act to the aggregate value of nearly $300,000. The cattle quarantine law has also been held constitutional in a recent decision, in which the opinion of the court follows closely the argument of the brief of the solicitor of the department, while a large number of regulations and orders having the force of law, prepared by the solicitor for carrying into effect the various laws with the enforcement of which the Secretary of Agriculture is charged, have stood the test of the courts. It will readily be seen, therefore, that the importance and responsibility, as well as the volume of work done in the solicitor's office, has materially increased, and the advance in salary is believed to be fully warranted.

WEATHER BUREAU.

The work of the Weather Bureau has followed its usual lines, except that during the past summer, for the first time in its history, weekly forecasts of the weather were attempted, in addition to the usual daily predictions. These weekly forecasts were made possible by cooperation with other governments, as a result of which the bureau here in Washington received daily weather reports from different points in Canada, from Iceland and Japan and Russia, from all the European countries, the Philippines, Guam, Hawaiian Islands, Alaska, and various islands of the Atlantic. Having thus placed before them every morning the weather conditions existing over the entire Northern Hemisphere, our experts were able to trace the sweep of the great storm waves across the continents and oceans and to predict with very creditable accuracy the general conditions that would prevail in different sections of our own country for a week in advance.

BUREAU OF ANIMAL INDUSTRY.

The Bureau of Animal Industry has made notable progress during the year in eradicating the stock diseases that for so long have levied their annual toll upon our western ranges. Four entire States and parts of two others were released from the quarantine for sheep scale, and portions of four States for cattle mange. The work of exterminating the Texas fever tick was carried on in 12 States, and 40,798 square miles of territory were cleared of the pest. Some idea of the immense amount of work involved in this effort to control and eradicate animal diseases may be gained from the statement that during the year this bureau inspected nearly 60,000,000 sheep and over 20,000,000 cattle, besides supervising the dipping of 19,000,000 animals. One of the very important achievements of this bureau during the past year was the development of a highly effective method of preventing hog cholera by vaccination. It has been estimated that the annual loss to the farmers of the United States from hog cholera is not less than $70,000,000. Tests of the new remedy which have been made during the past few months seem to make it certain that this loss can be almost wholly eliminated when the method of treatment is understood and generally applied. But perhaps the most important work of the Bureau of Animal Industry during the year was the prompt and effective way in which it met the emergency created by the outbreak of contagious foot and mouth disease which occurred last November. This outbreak affected 2 counties in Michigan, 5 counties in New York, 15 counties in Pennsylvania, and 1 county in Maryland, and by the prompt and vigorous action of this bureau the disease has been practically eradicated without being allowed to spread to other parts of the country. To accomplish this result nearly 4,000 animals on 157 farms or premises were slaughtered and buried and the premises disinfected. The measures taken were heroic, but they were necessary, for if the contagion had been allowed to reach the great stock-growing regions and the range country of the West enormous losses would have been inflicted and eradication might have been impossible.

BUREAU OF PLANT INDUSTRY.

Acting upon the suggestions of your committee, the Bureau of Plant Industry has made a special effort during the past year to bring about a proper balance between its investigational, experimental, demonstrative, and extension work, and the result has been highly gratifying. In many sections of the South, particularly where the advent of the cotton-boll weevil had brought about conditions bordering on panic, the work of this bureau has been especially effective. Through its agents it has come into personal touch with probably 250,000 farmers, and the detail information it has carried to them has been of immeasurable value in aiding them to meet the emergency that confronted them. A large part of the increased appropriation recommended by this committee is intended to be used in extending this work. The remainder of this increase, or a large share of it, will be devoted to demonstration work in cooperation with the Reclamation Service. A large number of the projects which this service has in charge are now completed, and many settlers have entered upon them. But the soil and the climate are untested, and unless they can have the advantage of expert advice and example it is feared that the settlers will meet with failures, which would not only bring them loss and discouragement, but would seriously retard the development of the projects. It is proposed, therefore, to have the trained men in the Bureau of Plant Industry take charge of a small farm on each of these several projects, ascertain by experiment the crops best adapted to the region, and demonstrate the best methods of irrigation and tillage.

One of the very important and difficult tasks imposed upon the Bureau of Plant Industry by a paragraph in the current appropriation act was that of fixing standards for the grading of cotton. After very carefully studying the problem the officials of the bureau asked the Secretary to call to their assistance a number of gentlemen who might be considered as experts in the handling and grading of cotton. Complying with this request, the gentlemen named by the Secretary, and who generously consented to serve without compensation, were: James A. Airey, of John M. Parker & Co., New Orleans, La.; J. S. Akers, of Inman, Akers & Inman, Atlanta, Ga.; Clinton B. Baker, of Lawrence Manufacturing Company, Lowell, Mass.; F. M. Crump, of F. M. Crump & Co., Memphis, Tenn.; John Martin, of Paris, Tex.; George W. Neville, of Weld & Neville, New York City; Lewis W. Parker, treasurer of Olympia Mills, Greenville, S. C.; Nathaniel N. Thayer, of Barry Thayer & Co., Boston, Mass.; and Charles A. Vedder, of John D. Rogers & Co., Galveston, Tex.

The committee was assisted in the actual preparation of the official grades by Julies Mazerat, of New Orleans; F. C. Millett, of New York; and James R. Taylor, of Dallas, Tex.

This committee met on Monday of this week and organized by the election of Mr. Nathaniel N. Thayer as chairman. It has been busily engaged during these three days in preparing actual samples of cotton which in the judgment of the experts assisting the committee may be taken as types of the various grades which they are attempting to establish. It is the expectation of the department that when these types have been selected they may be used as samples, and cotton exchanges, agricultural colleges, or any organizations or individuals who may wish to obtain samples may by the help of experts and by comparison with the typical samples on file, if we may so term it, in the Department of the Agriculture be enabled to prepare such samples. And it is the belief of the gentlemen who constitute this committee, and who are recognized as among the most expert and capable handlers and graders of cotton in the United States, that as a result of their work and of that of the department a great benefit will be brought to the purchasers as well as to the sellers of cotton in the simplification of grades and in making those grades more uniform.

THE FOREST SERVICE.

The increase in the appropriation for the Forest Service carried in the bill—$750,000—seems large, but it is only a small part of that recommended in the estimates, which was $2,100,000. Since last year new national forests have been created by proclamation of the President aggregating about 17,000,000 acres, while the use of the forests has enormously increased. The books of the Forest Service show that last year the number of timber sales increased 206 per cent, the amount of timber cut 102 per cent, free-use permits 176 per cent, and the number of special permits 67 per cent, while the sales and fees received increased 20 per cent. Summing it all up, the total increase in the amount of business done was 46 per cent. Assuming that there will be a corresponding growth during the coming year,

the proposed increase in the appropriation seems fully warranted. The policy of making permanent improvements in the forests, with a view to their better protection from fires, seems to have been well justified by the experience of the past season, as the fire losses were but little over $1,000,000, whereas if the same rate had prevailed as in private forests during the same season the loss would have been more than $30,000,000. It is not unreasonable to say that in the matter of fire protection alone the Forest Service has saved for the country during the past year an amount of property equal to the entire cost of its maintenance for a decade.

It has been the policy of the Forest Service in this as in former years to carefully protect the interests of the small users of the forests rather than to have them monopolized by the great concerns. For example, out of a total of 5,062 timber sales 4,584 were for less than $100, 326 from $100 to $500, 63 from $500 to $1,000, 71 from $1,000 to $5,000, while only 18 sales were made for timber exceeding in value $5,000. Of the 19,000 grazing permits issued during the year, 12,600 were for less than 40 head and only 1,278 were for more than 200 head. It might be added in this connection that the condition of the ranges within the forests has so much improved that it was found possible to allow 27,000 more cattle and horses and 205,000 more sheep upon them than were grazed last year. One of the interesting experiments made was the inclosing of a pasture with a coyote stock fence on one of the forests in Oregon, in order to observe the results of permitting sheep to graze freely rather than under the charge of a herder. It is claimed that the pasture thus inclosed showed a carrying capacity of 50 per cent greater than precisely similar ranges on the outside, and that the lambs weighed 8¾ pounds per head more at the close of the season than the lambs on the outside. This experiment attracted a great deal of attention throughout the West and may lead to an entire revolution in the manner of grazing sheep upon the public lands.

The revenue sales of timber during the year was $849,227.24; from grazing, $962,829.40; and from all other uses, $30,425.23, bringing the total receipts up to $1,842,481.87, showing a deficit between receipts and expenss of $1,303,518.13, which represents the actual net cost to the Treasury of the Forest Service. Of this amount $592,169.19 was expended for permanent improvements, leaving $711,348.94 as all which, perhaps, could properly be charged in the nature of a deficit against the service. It should not be forgotten, however, that there is a great deal to show for this $711,348.94 in the way of valuable investigations, the spread of the practice of forestry outside of the national forests, the protection of the forests from fire, and the insurance against the timber scarcity in the future.

BUREAU OF CHEMISTRY.

The chief energy of the Bureau of Chemistry during the year has been expended upon the enforcement of the food and drugs act, and its efforts have met with marked success. For the most part, the determinations of the bureau have been accepted without contest, and the manufacturers of foods and drugs have cordially acquiesced in the decisions rendered and complied with the regulations prescribed. In three conspicuous instances, however, vigorous protests were entered by the interests concerned, and in deference to their representations the Secretary of Agriculture organized what is known as the "referee board," appointing to membership upon it Dr. Ira Remsen, president of Johns Hopkins University; Dr. Russell H. Chittenden, of Yale; Dr. John H. Long, of Northwestern; Dr. Alonzo E. Taylor, of the University of California; and Dr. C. A. Herter, of New York. To this board the Secretary referred the question of the wholesomeness or deleterious character of benzoate of soda, sulphur dioxide, and saccharine. The report upon benzoate of soda has recently been made, the decision of the board of referees being to the effect that this substance was not deleterious when used in the ordinary way as a preservative of food. It is expected that the report on saccharine will be ready in a few weeks, while that on sulphur will probably be delayed for several months. The high standing of the scientists composing this board seems to leave no doubt that its determination will be generally accepted; and in view of the enormous business interests involved, the organization of the board, for which there is ample legal authority, seems to be fully justified.

Along the line of its usual investigations the Bureau of Chemistry has made special effort during the year to develop the manufacture of denatured alcohol. A plant of the smallest size practicable for commercial work was erected and alcohol has been manufactured from a large number of inferior farm products and by-products, among other things being low-grade molasses, damaged wheat, corn, waste apples, and watermelons. The results of these tests are thought to be fairly encouraging and a bulletin describing them will be issued soon.

THE BUREAU OF SOILS.

The Bureau of Soils, in addition to its usual work, has begun a reconnaissance soil survey of the region lying west of the one hundredth meridian and east of the Rocky Mountains, the purpose of which is to outline in a broad way the general character of the soils in that section. During the summer some 40,000 square miles were thus mapped in North Dakota, and similar work in now going forward in western Texas. The bureau discontinued the soil utilization work which it had begun in New York and other States, turning it over to the Bureau of Plant Industry, where it properly belonged, and which has been carrying it forward.

BUREAU OF ENTOMOLOGY.

The Bureau of Entomology has found its resources heavily taxed this year to meet the demands upon it by means of the ravages of injurious insects in all parts of the country. Perhaps the most serious situation anywhere is that which confronts the pear orchards in the Pacific coast, where a parasite known as "thrips" has attacked the trees and destroyed hundreds of acres of extremely valuable orchards.

Its ravages have been so great, indeed, as to seriously threaten the future of the pear industry in the States concerned, and it is a matter for regret that as yet no practical remedies have been found.

Decided success has, however, attended the efforts that have been made to control scale insects in southern California, and methods of treatment have been perfected which have resulted in a great saving to orange and lemon growers. The work against the white fly in Florida has been carried on with success and seems to be about concluded. The efforts of the bureau to prevent the further spread of the gypsy moth in New England have been only measurably successful, and upon the earnest solicitation of Representatives from that section the committee recommends an increase of $50,000 in the appropriation for the work of the coming year. And I should like to say at this time that I have introduced a bill, which I hope will receive early consideration, for the inspection of orchard stock coming into this country and entering into interstate commerce in this country. I have introduced that bill at the request of the department for the reason that in the last two weeks in orchard stock imported from abroad there have been found something like 1,500 nests of the brown-tailed moth, and the stock having been shipped to many different parts of the country, it seems as if that very destructive pest is likely to be widely scattered throughout the United States. It certainly would seem to be poor economy to expend $250,000 to $300,000 every year in endeavoring to exterminate an insect, while at the same time we permit the importation of that insect without any attempt to prohibit it. There is now no law upon our statute books by which orchard stock entering into our ports may be inspected, either for disease of the stock itself or manifestations of injurious insects. And I hope the bill to which I have called attention may become a law at this session of Congress.

No hope is entertained that the gypsy moth can be wholly exterminated, but it is believed that by the proper effort it may be prevented from spreading beyond the present infested area until its natural enemies which are being introduced as rapidly as possible can multiply sufficiently to hold it in reasonable bounds. The importation of parasites is being continued; specimens have been brought in both from Europe and Japan in large numbers. Several species of these parasites have thoroughly established themselves and are assisting in the destruction of both the gypsy moth and brown-tail moth.

THE BIOLOGICAL SURVEY.

The Biological Survey has been carrying forward its usual work during the past year with even more than the usual degree of success. It will probably be in the nature of news to most of the Members to learn that the annual loss from wolves and coyotes on our western stock ranges is estimated at $12,000,000. By methods recommended by the Biological Survey it was reported that during the past year 1,800 wolves and 24,000 coyotes have been killed, with a resultant saving in live stock of not less than $2,000,000.

A plague of field mice, which was absolutely devastating the Carson Valley in Nevada, was arrested by the survey, and gratifying results were met with in similar instances in different parts of the West. The rather startling discovery was recently made in California that a certain variety of ground squirrel aids in the spread of bubonic plague, and the Bureau of Biological

Survey has been called in to assist in its extermination. One of the rather unusual suggestions of this bureau, made as a result of its recent studies, is that deer farming could be taken up with great profit in many parts of the country. The bureau estimates that the value of venison killed in the United States amounts to between $12,000,000 and $15,000,000 annually, and if the waste lands suitable for the grazing of deer were utilized for this purpose venison could be produced far cheaper than beef at present prices.

DIVISION OF PUBLICATIONS.

The Division of Publications naturally follows the same lines year after year, but it may be of interest to members of the committee to know that there was distributed through this division last year nearly 17,000,000 copies of bulletins, documents, and reports of various kinds. The total number of publications edited aggregated 1,522, comprising 15,510 printed pages. In order to handle this vast amount of literature properly the committee recommends in the present bill an increase in the appropriation for this division which will enable it to substitute machines for a great deal of the labor that is now done by hand.

BUREAU OF STATISTICS.

The work of the Bureau of Statistics also follows the same general lines from year to year, and it is perhaps enough to say that its reports during the last twelve months have not been the subject of unfavorable comment or criticism, and it would appear that the efforts to improve the crop-reporting service have been productive of good results.

THE OFFICE OF EXPERIMENT STATIONS.

The Office of Experiment Stations has direct charge of stations in Alaska, Hawaii, Porto Rico, and Guam, and from each of these have come very interesting reports. It was shown in Alaska that barley and wheat can be matured in many parts of the Territory, and numerous other facts have been developed which will be of great value to the rapidly increasing numbers of those who are seeking homes there.

In Hawaii methods have been devised for the shipping of pineapples, avocados, and similar fruits to Chicago and other markets, and experiments have been made which show the large possibilities of rubber production in the islands.

In Porto Rico marked success has been obtained with Java coffees and with pineapples and citrus fruits and with the breeding of swine and poultry.

In Guam the small amount of $5,000 appropriated for the current year has been used to advantage in a sort of preliminary survey of the work needed and in a study of the situation, as a result of which definite plans for the future may be made. Owing to the fact that there is no public land in this island, it will be necessary to purchase whatever is needed for the use of the station, and a small sum is authorized in this bill for that purpose. The agricultural possibilities of the island are very considerable, and its present condition is most deplorable. As a mere matter of humanity the work begun there should be carried forward vigorously, and the pending bill makes moderate provision for its continuance.

THE OFFICE OF PUBLIC ROADS.

The Office of Public Roads, complying with the limitations in last year's appropriation bill, has dispensed with the use of road-making machinery, and, in the judgment of your committee, its usefulness has been greatly enhanced thereby, for the reason that energies heretofore absorbed in the actual construction of the roads have been directed purely to supervisory work, and it has been possible, therefore, to accomplish a great deal more.

Expert advice has been furnished to local authorities in nearly every part of the country, hundreds of samples of road material have been tested, and many counties and States have been assisted to introduce modern systems of road construction, maintenance, and administration. Particularly good results have followed from special investigations made in this office with reference to corrosion of iron and steel, as a result of which many steel mills have materially changed their method of manufacture. Experiments have also been made in the use of protective pigments, which bid fair to revolutionize the whole subject and result in the development of a method of treatment of steel surfaces immeasurably in advance of any method now practiced.

CONCLUSION.

Such, very briefly, are a few of the more striking features of the work that has been accomplished during the past year by this great department. It has occupied more time in the telling than I perhaps ought to have taken; and yet, all I have said is hardly more than a hint of the nearly innumerable useful things which the year has seen done through this powerful and beneficent arm of our Government. Clothed with stupendous responsibility touching the enforcement of important and far-reaching laws, it has discharged that responsibility with wisdom and fidelity and success. Endowed with a splendid opportunity to serve the people by promoting the prosperity of their fundamental industry, it has more than measured up to their most sanguine expectations.

In its preparation of the pending bill your committee did not lose sight of the condition of the national revenues, which imposes economy upon the national expenditures as an imperative obligation; and so wherever it could be done without detriment to the service the estimates submitted by the department have been reduced, the total amount of this reduction being $1,739,700. On the other hand, the committee has not lost sight of the fact that the Department of Agriculture is to a very considerable degree a revenue-producing department; that it is in a very large degree a wealth-creating department; and that the exercise of too great parsimony in the appropriation for its support would be extravagance and not economy; and it has therefore granted increases in certain of the bureaus over the amounts available for the current year in the aggregate sum of $1,208,820. As it stands your committee believes that the bill provides conservatively, and yet safely, for all the needs of the department, and that it appropriates funds sufficient to carry forward all the work which is likely to be imperatively needed during the coming year.

One feature of the bill to which I desire especially to call the attention of the committee at this time is the greater itemization of the lump-sum paragraph. Your committee recognized the justice of the criticism made last year against the bill in this particular, and, although the bill of last year did not sin to any greater degree in this matter than the previous bills had sinned, yet it was evident to us that the criticism was a just one, and so far as the committee has deemed it wise that criticism has been met in the rearrangement of the present bill. The itemization still lacks much of being as detailed as the committee would like to have it, but we realize the necessity of proceeding cautiously in a matter of this kind, because with a great scientific department such as that of Agriculture it would be very easy, by tying up the appropriation too closely, to very materially hinder the transaction of the necessary business of the department. We believe that a step has been taken in the right direction, and we hope that what has been done in that line will meet with the approval of the House.

Inasmuch as there is no disposition on the part of the committee to unreasonably hamper debate under the five-minute rule, I believe that any information which Members may require, touching the details of the bill, may be had when we come to discuss it under that rule. Therefore, I will ask for the reading of the bill. [Applause.]

The Clerk read as follows:

DEPARTMENT OF AGRICULTURE.

Office of the Secretary: Secretary of Agriculture, $12,000; Assistant Secretary of Agriculture, $5,000; 1 solicitor, $4,500; chief clerk, $2,500, and $500 additional as custodian of buildings; private secretary to the Secretary of Agriculture, $2,500; stenographer and executive clerk to the Secretary of Agriculture, $2,000; private secretary to the Assistant Secretary of Agriculture, $1,600; stenographer to the Assistant Secretary of Agriculture, $1,400; 1 appointment clerk, $2,000; 1 chief of supply division, $2,000; 1 inspector, $2,500; 2 law clerks, at $2,000 each; 3 law clerks, at $1,600 each; 1 telegraph and telephone operator, $1,400; 1 telegraph and telephone operator, $1,200; 2 clerks class 4; 3 clerks class 3; 6 clerks class 2; 9 clerks class 1; 7 clerks, at $1,000 each; 4 clerks, at $900 each; 10 clerks, messengers, or skilled laborers, at $840 each; 8 clerks or laborers, at $720 each; 1 chief engineer, who shall be captain of the watch, $1,600; 1 assistant engineer, $1,400; 2 assistant engineers, at $1,000 each; 4 firemen, at $720 each; 4 elevator conductors, at $720 each; 1 construction inspector, $1,200; 1 cabinetmaker, $1,100; 1 carpenter, $1,000; 1 electrician, $1,000; 1 electrical wireman, $900; 1 painter, $900; 1 painter, $720; 1 plumber, $900; 1 blacksmith, $840; 1 lieutenant of the watch, $1,000; 26 watchmen, at $720 each; 1 mechanic, $1,200; 2 mechanics, at $1,100 each; 6 assistant messengers, or skilled laborers, at $720 each; 6 assistant messengers, or skilled laborers, at $600 each; 7 laborers, at $600 each; 17 laborers, messenger boys, or charwomen, at $480 each; 1 charwoman, $540; 5 charwomen, at $240 each; for extra laborers and emergency employments, $7,600.

Mr. MACON. Mr. Chairman, I reserve the point of order on the paragraph.

Mr. SCOTT. Mr. Chairman, the only new matter in this paragraph is increasing the salary of the solicitor and of the inspector.

Mr. MACON. I see here, on page 2, where you create 2 law clerks at $2,000 each and 3 law clerks at $1,600 each. Is not that new matter?

Mr. SCOTT. The new matter in this paragraph is as follows: The salary of the solicitor is increased to $4,500; the salary of the inspector is increased to $2,500. There have been added to the Secretary's roll two new places, one a clerk at $800 and one a mechanic at $1,200. All the other additions to the

Secretary's roll are by transfer from the lump sum or from some one of the bureaus.

Mr. MACON. Are the 2 law clerks at $2,000 and the 3 law clerks at $1,600 new places?

Mr. SCOTT. These law clerks have been carried heretofore on the lump-sum roll of the Bureau of Chemistry, but they were used in the office of the solicitor; and inasmuch as the salary of the solicitor is carried on the Secretary's roll, it was the opinion of the committee that all of the clerks used by the solicitor ought also to be carried on the Secretary's roll, and not to be charged up to any particular bureau, and for that reason the transfer was made from the Bureau of Chemistry to the Secretary's roll.

Mr. MACON. Have you transferred to the jurisdiction of this solicitor five law clerks?

Mr. SCOTT. They are already under his jurisdiction. This transfer is only of the salary paid to the appropriation where it is used.

Mr. MANN. May I ask the gentleman what authority is there for paying these law clerks out of the Bureau of Chemistry appropriations, and then transfer these clerks to the Secretary's office?

Mr. SCOTT. Well, I presume they were paid out of the appropriation for the Bureau of Chemistry upon the theory that the larger part of their work was made necessary by the fact that upon the Bureau of Chemistry was laid the enforcement of the pure-food law.

Mr. MANN. That is the bureau especially where the law clerks belong.

Mr. SCOTT. It was the opinion of your committee, inasmuch as the solicitor is carried on the Secretary's roll, and inasmuch as he and all the assistants in his office are doing work not only for the Bureau of Chemistry but for all the other bureaus of the department whenever called upon, that the force of the office ought to be carried on the Secretary's roll.

Mr. MANN. Well, does not the gentleman think that in the Bureau of Chemistry, which has the duty of enforcing and construing the pure-food law, there ought to be law clerks familiar with the law, specially devoted to the enforcement of the pure-food law? Is not that the one place where the law clerks belong and where the solicitor properly belongs? Were not these law clerks created for the purpose of enforcing the pure-food law, and did they have any existence before this pure-food law was enacted?

Mr. STAFFORD. The committee is following the practice that obtains in the other departments. For instance, in the Post-Office Department the law clerks and the Assistant Attorney-General are under the control of the Postmaster-General, while their work is mostly in the office of the Third Assistant Postmaster-General. I suppose this committee is following that idea of having them under one head.

Mr. MANN. The jurisdiction there is in the Attorney-General.

Mr. SCOTT. Answering the question of the gentleman from Illinois, I wish to suggest that the enforcement of the pure-food law so far as it rests upon the Bureau of Chemistry, relates only to "the examination of the specimens of foods and drugs" taken for examination by the department under the pure-food law. That is referred to the Bureau of Chemistry; but the legal part of the work, the executive part of the work, is under the direct supervision of the Secretary of Agriculture; and it seems to me, therefore, that it would not be necessary for the Bureau of Chemistry to have a law clerk who is subject to the direction of the chief of that bureau, because the chief of that bureau has nothing whatever to do with the execution of the law so far as is concerned with the preparation of the testimony to go into court or anything of that kind. His duty consists in determining, under the language of the pure-food law, the character of the food and drugs submitted to him for analysis.

So it seems to me entirely proper that the entire legal force of the department should be under one head, and that head should be the Secretary of Agriculture.

Mr. MACON. I would like to ask the chairman of the committee a question, if he has finished answering the question of the gentleman from Illinois.

Mr. SCOTT. I yield to the gentleman from Arkansas.

Mr. MACON. Was not this solicitor's position originally that of a law clerk?

Mr. SCOTT. It began in the department as a law clerk.

Mr. MACON. And has he not been insisting upon an increase of about $500 a year nearly every year since the office was created?

Mr. SCOTT. Oh, he began, as I recollect, with a salary of $2,500

Mr. MACON. And his salary has been increased nearly every year.

Mr. SCOTT. His salary has been increased from time to time.

Mr. MACON. In 1904 the position was created, and the salary has been increased practically $500 a year up to the present time.

Mr. LAMB. It is not yet up to the amount paid the other solicitors.

Mr. SCOTT. It is still $500 below the salary paid the solicitors of all other departments. It has been below the salaries of other solicitors ever since the position was created, as a matter of fact.

Mr. MACON. I can not understand why it is that, because one solicitor or a number of solicitors may be getting larger salaries, perhaps, than the revenues of the country will justify just now, you should increase the salary of another more than the revenues will stand.

Mr. SCOTT. The gentleman from Arkansas has studied departmental customs in Washington to very poor effect, it seems to me, if he has not discovered a marked tendency on the part of the people employed in all these departments to have men bearing the same title paid the same salary.

Mr. MACON. And they are more interested in the salary than the title, are they not?

Mr. SCOTT. The gentleman says that.

Mr. MACON. I am asking the question.

Mr. WEEKS. Is it not true that the work in that office has practically doubled in the last five years?

Mr. SCOTT. The work in the office has a great deal more than doubled in the last five years. I tried to call attention in my opening statement to the extent to which it had been increased. The imposition upon the department of the enforcement of the pure-food law, of the twenty-eight-hour law (under which nearly 700 cases were brought last year), of the meat-inspection law, and of other laws has very materially increased the work of that office.

Mr. MACON. My information is that while the work may have doubled, he has been given two assistants during that period of time.

Mr. SCOTT. He has been given more than two assistants.

Mr. MACON. So he is not doing, perhaps, more than a third of the work he was doing originally, and his salary has been increased all the time.

Mr. SCOTT. The change is subject to a point of order, and if the gentleman intends to insist upon it, I do not care to protract the debate.

Mr. MANN. Will the gentleman reserve his point of order?

Mr. MACON. I will reserve the point of order to allow the gentleman from Illinois to make a statement.

Mr. MANN. As the gentleman from Kansas [Mr. SCOTT] has declined to yield for interruption, I will take the floor in my own time.

Mr. SCOTT. I beg the gentleman's pardon. I did not decline to yield for interruptions; I simply desired without interruption to answer the question of the gentleman from Illinois.

The CHAIRMAN. The Chair will recognize the gentleman from Illinois in his own right.

Mr. MANN. Mr. Chairman, I do not know whether these five law clerks are now in the office of the solicitor, all of them. They were most of them appointed primarily for the purpose of the enforcement of the pure-food law. They are paid out of the appropriation for the pure-food law, and if they were not appointed for that purpose they are illegally employed, probably, which I do not apprehend is the case.

Under the arrangement for the enforcement of the pure-food law there is a board of food control, consisting of the solicitor, Mr. McCabe; the chief of the Bureau of Chemistry, Doctor Wiley; and Mr. Dunlap. All of the questions go first before the Bureau of Chemistry. They do not originate with the solicitor. They are first passed upon in the Bureau of Chemistry.

It is just as essential for the proper administration of the law that there should be some one familiar with law—and familiar with the law—in the Bureau of Chemistry as there is that there should be some one in the Attorney-General's office familiar with law. I do not know that this is an improper transfer. I could not ascertain from the gentleman in reference to that, but there ought to be some one in the primary place where the investigation commences who has some knowledge of of law. I have had a number of cases come under my observation where cases were transferred from the Bureau of Chemistry to the board of control, and where the board of control permitted the case to pass through them and ordered a prosecution to commence that never was contemplated by the law or by the

board; and when their attention was called to it the board has very promptly, and very properly, corrected the mistake, which originated, no doubt, because some one in the Bureau of Chemistry with a technical knowledge of chemistry passed upon the question without proper technical knowledge of law.

Mr. SCOTT rose.

Mr. MANN. I will yield to the gentleman.

Mr. SCOTT. The gentleman will remember that the solicitor is a member of the board of control.

Mr. MANN. If the gentleman had listened to what I said at the beginning, he would have heard me state that the solicitor is a member of the board of control.

Mr. SCOTT. I wanted to refresh the gentleman's memory that he had made that statement, in order to show the inconsistency of his subsequent statement. If the solicitor of the department himself is a member of the board, how did it happen that the prosecutions were begun without the knowledge of the board?

Mr. MANN. I stated to the gentleman that the case passed through the board, having originated in the Bureau of Chemistry, without being detected in the board, whereas if the person who had originally passed on this question in the Bureau of Chemistry had had a proper technical knowledge of the law they would never have passed through without anybody noticing them.

Mr. SCOTT. It seems to me that if they passed through the board of which the solicitor is a member they would pass through the hands of any law clerk presumably less well posted in the law.

Mr. MANN. I want to say that I am not making any criticism of the solicitor or the board of control for letting the cases go through sometimes, because I suppose that is inevitable.

Mr. SCOTT. I do not see how it could be prevented by having a law clerk in the Bureau of Chemistry.

Mr. MANN. I think if the Bureau of Chemistry had a law clerk in that bureau through which every case was passed, in addition to going through the hands of the technical chemical expert, there would be much less danger of passing a case through which ought not to go through.

But I do not wish to be understood at all as criticising the solicitor. I have criticised the solicitor in the past on the floor of this House, but as I have learned more about the work he does—although I do not agree with him in many particulars in reference to his opinions on the board of control—the more I learn in reference to his work the more I become satisfied that Mr. McCabe is an efficient, earnest, hard-working solicitor, and personally I believe that his salary ought to be increased, so far as the salary is concerned. Nor do I doubt that he ought to have some law clerks; but I would like to know, if I may, whether all five law clerks are in his office or whether some are transferred from the Bureau of Chemistry.

Mr. SCOTT. There never has been, to my knowledge, a law clerk in the Bureau of Chemistry. The chief has never asked the committee for such an official, and the Secretary has never recommended it; and I presume it has been the opinion of the Secretary that sufficient legal advice would be given that bureau by taking the solicitor himself onto the board.

Mr MANN. I may say to the gentleman that with that statement I do not see how he could do otherwise than to transfer them and not pay them out of the appropriation for the enforcement of the pure-food law; although I think there ought to be a solicitor or law clerk in the Bureau of Chemistry, who would pass on the questions when they first come into the office.

The CHAIRMAN. The time of the gentleman has expired.

Mr. SCOTT. Mr. Chairman, I would like to make one observation before closing debate. I wish the House to distinctly understand that there is not now, and never has been, a law clerk in the Bureau of Chemistry. All the clerks now under consideration are employed at the present time in the solicitor's office, and have been there ever since their appointment. They connect with the Bureau of Chemistry only through the pay roll. At present they are cared for under a lump-sum appropriation for the Bureau of Chemistry. It was the opinion of the committee that it was better administration to have these clerks paid from the appropriation of the office in which they are doing their work, than to have their salaries paid from the office in which they are not doing their work.

These clerks are doing work for all the bureaus of the department—writing contracts, looking up cases, and things of that sort—and it would be impossible to separate the work they do for the Bureau of Chemistry from that which they do for other bureaus. It seems to me clear that they belong in the office of the Secretary, and your committee therefore recommends that that transfer be made.

Mr. DRISCOLL. What bureau were they carried in before?

Mr. SCOTT. For the purpose of getting their salaries they were carried in the Bureau of Chemistry, but they were doing their work in the solicitor's office.

Mr. DRISCOLL. Were they classified as law clerks?

Mr. SCOTT. Yes; under the lump sum of the Bureau of Chemistry.

Mr. MANN. They were classified as clerks?

Mr. SCOTT. Possibly.

Mr. DRISCOLL. They were not classified as law clerks?

Mr. SCOTT. I am not certain as to their exact classification. My recollection is they were classified as law clerks.

Mr. MACON. Mr. Chairman, I was to some extent brought up in a school of economy, and was taught that the best way to administer the affairs of any free government was to do it economically and honestly; to do it on the same principle that intelligent business men conduct their private affairs; and I have not outgrown my raising. If during a period of prosperity a great business enterprise were organized with several branches, and each branch had a manager, and a period of revenue depression were to set in afterwards, and the enterprise were to begin to run behind millions of dollars every year, spending millions of dollars more than its profits amounted to, do you think it would be wise for it to further exploit its revenues by entering upon a policy of increasing the salaries of its managers? Undoubtedly not.

Let us suppose that during the period of prosperity some of the managers from some cause had had their salaries raised a few hundred dollars above the salaries that some of the other managers were receiving. Does the House believe it would be wise while the enterprise was running in debt millions of dollars each year to have it enter upon a system of increasing the salaries of the other managers simply to bring them up to the amount paid the higher salaried managers? I think not. I can not believe the House will insist that that would be a proper thing to do.

Now that this Government is running behind millions of dollars each year, I think it is time for it to retrench. I understand its deficit will be approximately $150,000,000 the next fiscal year. I am advised that during the first seven months of the present fiscal year we have run behind something like $75,000,000; and that being the case, I can not understand why we, as Representatives of the people, should be called upon to increase the salaries of those officers who are not receiving quite as much, perhaps, as some others in their class are receiving, and in that way further distress the financial condition of the country. We all remember that a few years ago, when we had the war with Spain, we were taxed upon every legal instrument that was written or recorded and upon many other things of everyday use; and, sirs, if we go on exceeding our revenues by $150,000,000, $100,000,000, or $50,000,000 a year even, it will only be a question of a few years when we will have to resort to that kind of taxation again or else place some other kind of additional tax burden upon the people in order to raise revenues sufficient to support the Government. I rebel against so unhappy a contemplation as that, Mr. Chairman, and I insist upon a point of order against the words "five hundred," in lines 11 and 12, on the first page of the bill, and in line 9 of the second page.

Mr. SCOTT. Mr. Chairman, I concede that the point of order as to the solicitor and the inspector is well taken, being the point of order insisted upon by the gentleman from Arkansas.

The CHAIRMAN. The Chair sustains the point of order.

Mr. SCOTT. Mr. Chairman, I ask unanimous consent to have the Clerk make the necessary correction in the bill, and in all totals, as the bill proceeds.

The CHAIRMAN. Unless objection is heard, it will be so ordered.

There was no objection.

The Clerk read as follows:

WEATHER BUREAU.

Salaries, office of Chief of Weather Bureau: One chief of bureau, $6,000; 1 assistant chief of bureau, $3,000; 1 chief clerk, $2,250; 4 chiefs of division, at $2,000 each; 1 librarian, $2,000; 7 clerks, class 4; 7 clerks, class 3; 18 clerks, class 2; 27 clerks, class 1; 18 clerks, at $1,000 each; 9 clerks, at $900 each; 4 copyists or typewriters, at $840 each; 1 copyist or typewriter, $720; 2 assistant foremen of division, at $1,600 each; 1 proof reader, $1,400; 1 chief mechanic, $1,400; 1 lithographer, $1,300; 3 lithographers, at $1,200 each; 2 pressmen, at $1,250 each; 10 compositors, at $1,250 each; 1 skilled mechanic, $1,200; 6 skilled mechanics, at $1,000 each; 1 engineer, $1,200; 1 captain of the watch, $1,000; 1 electrician, $1,000; 6 skilled artisans, at $840 each; 5 messengers or laborers, at $720 each; 3 firemen, at $720 each; 4 watchmen, at $720 each; 5 folders and feeders, at $720 each; 3 folders and feeders, at $630 each; 6 messengers or laborers, at $660 each; 13 messengers, messenger boys, or laborers, at $600 each; 4 messengers, messenger boys, or laborers, at $480 each; 5 messengers, messenger boys, or laborers, at $450 each; 1 charwoman, $360; 3 charwomen, at $240 each; in all, $205,310.

Mr. EDWARDS of Georgia. Mr. Chairman, I reserve the point of order on the paragraph, particularly on the provision for the salary of $6,000 to the chief of that bureau.

Mr. SCOTT. Mr. Chairman, the point is, of course, well taken if it is insisted upon, but I really hope that it will not be pressed, because there seemed to your committee to be very strong reasons why this increase should be made. The present Chief of the Weather Bureau has been a member of that bureau for thirty-two years. He has been its chief for sixteen years, and during those sixteen years he has conducted its affairs with such signal ability that the Weather Bureau of the United States undoubtedly now stands in the very front rank of similar organizations the world over and is looked to from every other country in the world as a model for such organizations.

The chief of this bureau stands on a different footing also from the other chiefs of bureaus in the department, in that he alone is appointed by the President and confirmed by the Senate, and in the absence of the Secretary and the Assistant Secretary he is the acting secretary for the department. A great deal of responsibility rests upon him, and he discharges his duty with marked ability. He has been long in the service, and the committee thinks that the promotion now granted is not unreasonable. I wish to say that in the event the point is not pressed and his salary is allowed to stand at the figure fixed by the committee, I shall favor an amendment to the effect that the additional thousand dollars shall go with the office only so long as it is held by the present incumbent. I do not care to say anything further.

Mr. MANN. Mr. Chairman, I want to say this about the Weather Service. I notice that the appropriation proposed here is $154,000 less than the appropriation made last year for this service. It is true there is a considerable saving in reference to the rebuilding at Mount Weather and elsewhere. It is also true, I think, from my own knowledge of the situation, that this service is the most economically administered service with the work that has been done in the governmental service anywhere; that the chief of that service is more careful about the expenditure of money; that he gets the best results from the expenditure of money, and gives way a fewer number of times to extravagances than any other chief in the service; and it seems to me—if I can have the attention of the gentleman from Georgia, to whom I am addressing these remarks——

Mr. EDWARDS of Georgia. The gentleman has my earnest attention.

Mr. MANN. It seems to me it would be worth a good many thousands of dollars if Congress would advertise that where a bureau chief insists not only upon economy in the service under him, but himself exercises economy in making his appointments and does not ask for excessive appropriations, that in such a case we will slightly increase his salary. I think that under the circumstances the chief of this service is worth the money for the work that he has done. There is this fact in addition, I may say: The Weather Service is a service that constantly requires the presence of the chief of the bureau late at night. For years he was supplied with horses and vehicles, and his horses and vehicles, as far as government service is concerned, went the way of other higher officers than he who had the same class of vehicles; and he is required now, at his own personal expense, to maintain these horses and vehicles for the public use, and I know of no other government official in Washington who does that.

Mr. BARTLETT of Georgia. Mr. Chairman, I want to join with my friend from Illinois in urging my colleague, if he can, to withdraw his point of order. I know this gentleman is entitled to all that has been said about him. I think the increase of salary is just and proper, and I hope my colleague can see his way clear to withdraw the point of order.

Mr. CANDLER. Mr. Chairman, I want to say a word along the line suggested by the gentleman from Georgia who has just taken his seat. I do not believe that we could get a man of the accomplishments and the ability of the Chief of this Weather Bureau for the amount of money he is now receiving if he did not have some patriotism as well as the desire for emolument for connection with this service. He is one of the most efficient public servants that this Government has ever had. As is well known by the membership on the floor of this House, I, as a rule, do not favor an increase of salary very much; on the contrary, I have always heretofore opposed it. But believing that this is a just increase, I think it is a fit and proper recognition of great ability and of faithful service, and therefore I hope my friend will withdraw his point of order.

Mr. EDWARDS of Georgia. Mr. Chairman and gentlemen, I regret that I can not see my way clear to withdraw the point of order, as the gentlemen who have just spoken request me. I regret that I can not see it as they do. I feel that I must perform my duty here as a legislator.

I want to state my reasons for interposing this point of order. The bill provides that the Secretary of Agriculture shall receive $12,000 per annum. He is provided with an assistant at $5,000. Now, it is proposed to raise the salary of the Chief of the Weather Bureau from $5,000 to $6,000 per annum. The Chief of the Bureau of Animal Industry receives $5,000 per annum; the Chief of the Bureau of Plant Industry receives $5,000, and he has a chief clerk who does an abundance of work, and he gets only $2,250 per annum. The Chief of the Bureau of Forestry receives $5,000. The Chief of the Bureau of Chemistry receives $5,000. The Chief of the Bureau of Soils gets the pitiful sum of $3,500. The Chief of the Bureau of Entomology receives $4,000. The Chief of the Bureau of Biological Survey receives only $3,000. The Chief of the Division of Accounts and Disbursements receives $3,250. The Chief of the Bureau of Statistics receives $4,000. The Director of the Office of Public Roads receives only $3,000.

Now, my position is: If we are going to increase salaries, we ought to increase the small ones first. We have just as competent men in the positions I have named with the lower salaries, some of them getting only $3,000 per annum. I am decidedly in favor of increasing the salaries of those officials of this department who are at present allowed only small amounts for their compensation. They are deserving gentlemen and filling important positions, and when we go to raising salaries I favor looking after the smaller ones first.

I have not a word of criticism to offer against the Chief of the Weather Bureau, not a word; but, for example, here is the Director of the Office of Public Roads—at the head of one of the most important branches of the Agricultural Department—and he is receiving only $3,000 a year. We have to have competent men in these positions, and I think we have competent men in all of these bureaus, and we should pay them salaries of competent men and try to elevate the agricultural interest. It is far from me to strike one dollar from this bill intended for the benefit of the Agricultural Department, but in this case the salary that is now allowed to this able and efficient official is far in excess of that received by many of the chiefs in the Agricultural Department. If the Government has any money to place to the increase of salaries, I favor the increase of those who at present have the smaller salaries.

I feel it my duty, under the circumstances, to insist upon the point of order.

Mr. SOUTHWICK. Mr. Chairman——

The CHAIRMAN. Does the gentleman from New York desire to be heard on the point of order?

Mr. SOUTHWICK. No, sir.

The CHAIRMAN. The Chair sustains the point of order.

Mr. SOUTHWICK. Mr. Chairman, I ask leave to print in the RECORD so much of the annual report of the forest, fish, and game commission of the State of New York, recently sent to the legislature of that State, as relates to forestry. I also ask permission to print the address of James J. Hill, recently delivered before the Farmers' National Congress at Madison, Wis.

The CHAIRMAN. Is there objection?

There was no objection.

The documents referred to are as follows:

Annual report of the forest, fish, and game commission of the State of New York.

STATE FORESTS.

The following table will show the number of acres of land owned by the State on December 31, 1908—that which has been purchased but not yet conveyed to the State:

FOREST PRESERVE.

JANUARY 1, 1908.

	Acres.	
Adirondack preserve	1,438,999	
Catskill preserve	109,451	
		1,548,450
PURCHASES CONVEYED 1908.		
Adirondack preserve	61,627	
Catskill preserve	1,740	
		63,367
Total acreage conveyed to the State		1,611,817
AREA JANUARY 1, 1909.		
Adirondack preserve (Dec. 31, 1908)	1,500,626	
Catskill preserve (Dec. 31, 1908)	111,191	
Present area		1,611,817
LANDS CONTRACTED FOR NOT YET CONVEYED.		
Adirondack preserve	24,648	
Catskill preserve	19,295	
		43,943
Total acreage owned and contracted for		1,655,760

In former reports we have laid much stress on the importance of our forests and especially on the necessity for their preservation and proper use. As timber in the country decreases its value increases and its importance as a conservator of water supply more clearly appears. Many things have transpired during the year just closed to especially call our attention more pointedly than ever before to these matters.

During the year 1908, two notable conferences were held at Washington, presided over by the President of the United States. These conferences were attended by nearly all the governors of the States, members of the Supreme Court of the United States, Cabinet officers, United States Senators and Members of Congress, presidents of colleges, agricultural and forestry schools, engineers, representatives of scientific societies, and many others, among whom were such notable personages as Mr. J. J. Hill and Mr. Andrew Carnegie. The facts produced and discussed by learned men at those conferences attracted the attention and startled the whole citizenship of this Republic. Through discussion had there the reports on facts collected by the National Conservation Commission, by the efforts of its members and state departments, all who read have been made aware of the importance and value of our national resources. The people are becoming cognizant of the ominous conditions prevalent on every hand, the rapid diminution, the threatened shortage, and the disastrous results that invariably follow the destruction of a country's forests.

Then, too, during the last summer and autumn a long protracted drought prevailed. The water in many streams dried up, fires sprang up everywhere as by magic, the timber growth on forest land, in spite of the most strenuous efforts to protect it, was destroyed, and millions of dollars' worth of woodland property was devastated. Hardly a State, or county in any State, escaped without some loss. In the Catskill and Adirondack regions more than $600,000 worth of damage was done, with a large resulting injury to reforestation that can not be well figured. An expenditure of more than $138,000 in fighting fires was entailed. The State and private property will not recover from the loss in tree growth in fifty years. These fires were not the first ones, nor the most disastrous from which the State and the whole country have suffered. Every year there are more or less fires, and the waste and damage is enormous. Experts claim that more timber has been destroyed by fire than has been cut and legitimately utilized. The loss by fire, insect disease, and commercial use each year is four times greater than the natural production. That alone is enough to startle even the most thoughtless person.

Fires are started in many ways; more by sparks and coals from railroad engines than from any other source. Had not a better patrol system on the railroads been established last spring by this department, it is doubtful if we would have much green timber standing. The truth of the foregoing suggestion is shown by the fact that many hundreds of fires were started along the railroad rights of way in this manner, and were promptly extinguished before damage was done. Any one of those fires might have resulted, if allowed to run, in a great conflagration and much destruction of property. Yet, in spite of every effort, 86 disastrous fires originated in that way. The loss of commercial timber is the smallest part of it. The destruction of new growth, burning up the soil where it thinly covers the rock formation, preventing reforestation for long periods of years, setting back nature's work to again cover the ground and protect the water flow, is a resulting damage that can not be estimated in dollars and cents.

ADIRONDACKS AND CATSKILLS.

The following comparative statement of forest fires during 1908 with those of 1903, when the forest-fire loss reached its maximum, is interesting and instructive. The results attest the greater efficiency of this department as now administered.

	1903.	1908.
Number of fires	377	700
Acres of timber land burned	312,590	30,400
Acres of waste land burned	187,928	147,000
Total	500,518	177,400
FIRE LOSS.		
Standing timber	$695,282	$497,046
Pulp wood and logs	153,391	136,920
Buildings	34,443	10,020
Total	883,116	643,986
Cost of fighting fires	153,000	138,000

These figures are very significant. The period of drought was more severe and considerably longer in 1908 than in 1903, thereby making the fire danger much greater and affording what was probably the most favorable condition for conflagrations ever known in the Adirondack region. Please note the larger number of fires in 1908, yet the acreage burned over was less than two-fifths of that of 1903, the loss one-fourth less, and the cost of fighting fire $15,000 less.

These results can not be explained, in view of the infinitely worse conditions of the past year, except by greater departmental activity and volunteer work done by individuals. An important factor was that for the first time we had established a thorough patrol on the railroads, whereby over 500 incipient fires were extinguished before serious damage was done. Many of these fires are not included in the above tabulation. Yet, as already said, there were 83 fires started along railroad lines which resulted seriously. There seems to be no good reason for the provision of law that requires the State to pay one-half of the cost of patrolling railroads. The condition is created by railroad companies and should be cared for by railroad companies. In order to get them patrolled, the State should have the right to put the patrols on as necessity requires, and the railroad companies should pay for the work necessary to protect the forests from fire from this cause.

Reasonable provision has never been made to protect our forests from fire. Fires are the one great danger. The cause and opportunity for fires, so far as possible, must be eliminated. That this may be done, a system of paid patrols should be established. For this work, only the best men will suffice. They ought to be well paid so that good men may be secured. The commission should have a free hand in selecting them. They should have ample authority to enforce their orders. Danger from fire is so imminent, the necessity for preservation so great, that, at whatever cost it may entail, railroad companies operating within the forest preserve of the State should be compelled to use some substitute for coal for fuel; something that will not create fire to be thrown from grates or stacks into the dry, powder-like growth that abounds along their rights of way. Plainly, it is a question of change in this respect or no forests. There ought to be no question about our choice, and no hesitancy about putting it into operation.

If the fuel question was eliminated, the problem would be much simplified. As in Vermont, a law should be enacted giving the governor authority to suspend the hunting season in time of drought, prohibiting hunters and campers from going into the forests. Ninety-five fires were set by hunters, 27 by campers, 18 by fishermen; 120 in all from these causes. All of this danger should be eliminated and severe penalties imposed on those who carelessly or negligently set or cause fires to start. In fact, every instrumentality should be given and applied to prevent forest fires.

During last year in the United States, more timber was cut for commercial purposes than ever before in a given year. The total cut amounts to more than 41,000,000,000 feet board measure. Following close upon the heels of this great destruction in tree growth is the constant decreasing supply of water in our streams, greatly reducing the availability of many mills and factories, lessening their productiveness, distressing the people in many municipalities of the State by the shortage of pure water supply, affecting agricultural land to a marked degree, and gradually reducing the available water horsepower in nearly every mountain stream in the country.

Coincident with this rapid destruction of natural resources our population in the nation is augmenting so rapidly that, in fifty years, we will number at least 200,000,000 souls. The demand for lumber is increasing faster than our population, and the supply is decreasing faster than the increase of population.

In our last report we called attention to some of these facts and urged upon the people the immediate necessity of doing all in their power to conserve and restore these resources, so bountifully bestowed and so prodigally used. We now renew those suggestions. We again urge the necessity for a change in our law that will permit of better management.

The avenues of escape from a condition that will surely confront and menace near future generations, though few, are plain and easy to follow. This observation at present applies to private land. Timber on state land under the present constitution, unfortunately, can not be cared for in a practical manner nor cut or used. We can only protect it from trespass and let it rot. We can not clean it out when burned or down ripe and old. The public can not have the use of timber that is fast depreciating in value, thereby shortening the supply, adding to the demand, and increasing the price. We can not utilize our enormous water power, which should yield to the State a large annual revenue. We can not, without great cost, reasonably protect our forests from fires, because of the thousands of fire traps left by lumbermen, by other fires and windfalls, ready for the spark from the locomotive, the carelessly left camp fire, or cast-by lighted match. For these reasons, regulations suggested apply to private property, and will so apply until the State's property can be handled under an amended constitution in a more sensible and businesslike way.

It is the belief of this department that the State has ample inherent power to control the use of private property in such a way that public interests may be best served and protected. The power in the State for this purpose should be invoked to prevent in certain localities the cutting of trees below 10 inches in diameter and to compel the clearing up of refuse. This is a matter of regulation and may be done for the public good without the confiscation of private property. If this right to control private property to some extent does exist, then no one should be allowed to cut trees—at least in certain places where water sources would be affected—below 10 inches in diameter, and individuals should be compelled to clean up the débris left after lumbering, thereby removing opportunity for fires. The law should permit state property to be protected in the same way, at least so far as to remove the danger from fires.

To encourage tree planting for commercial purposes, it should be made as attractive as possible by legislative acts, encouraging thereby each one to plant trees who has a waste acre of land fairly safe from fires. Trees should be furnished below cost, and land dedicated to tree growing and planted ought to be exempt from taxation. These are the lines to follow, and the only ones that seem to lead to safety.

The State owns many acres of land outside of the blue line in the 16 counties in which our forest preserve lies. These lands are detached, widely separated, small parcels surrounded by private holdings, difficult to protect, most if not all of them having been lumbered. It would be wise to dispose of these parcels of land by sale, the proceeds to be used to purchase land within the blue line, or to exchange them for equally valuable lands inside the park limits and thereby consolidate our holdings. Under the constitution, this can not now be done. To us there appears no good business reason why the commission should not have this authority. To exchange or sell these lands would be that which any prudent man would do with his own property under like conditions.

Forests, if rightly used and managed, perform for the people certain definite and important offices. The more important ones may be enumerated as follows:

They constitute a home and breeding place for game animals and birds; they protect the source of water supply and regulate, to a great extent, the continued and even flow of water. By protecting the water supply fish life is sustained, pure water is insured, the soil is better irrigated and made more productive. Woods help to regulate the temperature, and, it is believed, have an appreciable effect in increasing rainfall in certain localities. They act as wind-breakers; they add oxygen to the air and purify it. One of their most important offices is to furnish wood for all the thousands of purposes for which wood is used. For the health and enjoyment of man they form the most complete panacea for human ills and the most perfect place for recreation known. They are nature's great sanitariums. These are some of their principal offices. For these purposes our forests should be managed and used. If we fail to use them for all these things a loss to the people follows. If we fail to preserve them, according to history in such cases, disaster follows. In our case, both future and present generations would bear the loss, but the present would be disgraced. The State now has nearly 1,700,000 acres of woodland. How are we using it? The question is easily answered. We are using it better than ever before, because we are protecting it from man's rapacity. We are not protecting it sufficiently from fire. We are giving it such protection as we can under prevailing conditions and with means at hand, yet that is inadequate. No protection is good enough except perfect protection.

As a whole people we are not using our preserves at all. Comparatively few people, under present conditions, can afford to use them. If

the Constitution was literally enforced, no one could cut a stick of wood for a campfire; no one could cut a stick on which to hang a camp kettle. In many long reaches of the forest there would be no place where shelter could be found. A tent could not be staked down unless the stakes were carried in from other lands. The Constitution, with all the good intentions of its builders, with all the needs at the time for a restrictive provision in this respect, established a park and forest preserve for the people, built it round with a high wall, with a few excellent people inside, but left the great majority on the outside of the wall unable even to look in and see its great natural beauty and enjoy its manifold blessings.

The present law will not permit putting state forest land on a safe business basis. Under a slightly amended constitutional provision, leaving it absolutely safeguarded as to waste and improper use, it could be reasonably used by all, protected from fire, and made to yield an annual revenue through the utilization of the water, the removal of waste timber, and from rentals from those who tenant it. This arrangement would provide maintenance without further appropriation, and annually add large tracts of woodland. Why not? Should the few occupy it as against the many? Are not the rights of all equal in this respect? If it is to be held and used simply to protect water sources, while the water runs away unemployed, except to sustain fish life and water the lowlands, then the present method is right. If our forest preserves are to be used as well for those other and more valuable purposes, then the present method of using, holding, and managing our woodlands is all wrong.

The impracticability of the present law, which prevents realizing to the fullest extent upon this valuable natural asset, the woodland and water supply of the State, is illustrated by the situation at the proposed great Ashokan reservoir. It is proposed to supply water for New York City by building a reservoir near Kingston and conducting the water impounded there to New York City. The total expense of this proposed project will be approximately $160,000,000. The projectors are met with the fact that the State owns land within the area required for flooding, which under the constitution can not be flooded or taken. If the rights of the State are enforced, it will materially injure, delay, and perhaps prevent the construction of the reservoir. If so, what a useless situation. And why should not the constitutional law be enforced as well when it affects large enterprises as when it affects small ones? The same is true of the great project on the Saranac River, begun by the Paul Smith Company. There, an investment of $400,000 is held up and rendered practically useless because of this unfortunate situation. This condition of things does not appeal favorably to the good common sense of people; it should not exist.

The water power developed in this State is about 27 per cent of all that developed in the United States. That which is developed here, to-wit, about 500,000 water horsepower, is, excluding Niagara and the St. Lawrence rivers, about half of all which we have. Why let more than 500,000 water horsepower, which money is waiting to develop, run to waste? Why not employ the money and labor necessary to apply this great power? Why should not the assessable property of the State be increased by this amount? Why should not the State be receiving the large annual revenue this utilized water horsepower would produce? Why longer let it run away to the gray old sea, doing little or no good? It seems to this department that a change in the constitution which would allow proper management and use of these great natural resources, safeguarding all the interests of the State, would commend itself to every thoughtful person.

SUGGESTIONS AND RECOMMENDATIONS.

In view of the existing conditions and the facts hereinbefore stated, the following suggestions are made:

First. It would seem to be reasonable that the constitution should be amended to provide for the sale or exchange of land outside of the blue line as necessity may require and the interests of the State warrant, the proceeds received by sale or exchange to be applied to acquiring land within the blue line.

Second. It would also seem reasonable that the constitution should be amended in such a way that the commission may lease small tracts of land under strict regulations and forfeiture clauses for permanent cottage and camp sites. In that way a very large annual revenue may be obtained, many more people would visit and enjoy the forests, and each one investing money for such a purpose would necessarily become an interested forest protector.

Third. If the constitution was amended in a way to allow a well-defined good-road system of a few main highways to be built through the forest reserve on plans to be approved by this department, to the end that the forest may be more accessible, that more of our people may visit the Adirondack and Catskill regions and have a chance to see and enjoy their great beauty, it would be beneficial in many ways. The roads would be fire breaks, and furnish a quicker and better way to reach many sections now inaccessible and difficult to protect.

Fourth. If the constitution does not now admit of removing dead and down timber and to abate threatening conditions to lessen the danger from fire, it should be amended to allow the State itself, from time to time, to do so.

Fifth. In view of the physical conditions and the facts elicited by the Water Storage Commission, it would seem that the Constitution should be amended to allow the construction of water storage reservoirs under state control and regulation within the Adirondack and Catskill counties, and that a general state policy of water storage should be adopted. This suggestion is made by this department, not because it is directly charged with water conservation, but for the reason that water conservation is intimately connected with and affected by forest conservation.

Sixth. In relation to forest fires, I offer the suggestions in the form of resolutions adopted by a conference of 40 men, who represented nearly all the business interests of the forest preserve counties, and among whom were eminent lawyers, members of the last constitutional convention, and men of broad experience from many sections of the State. The conference was held at the commissioner's office December 29, 1908, and suggestions are as follows:

a. "*Resolved*, That it is the sense of this conference that if it be necessary to secure the use of oil fuel or other equally safe source of power on locomotive engines running through the forest, legislation should be enacted or executive action taken.

b. "That the railroad companies be made to pay the whole cost of patrolling their tracks under State supervision instead of one-half, as at present.

c. "That adequate moneys be provided to the forest, fish, and game commission for the establishment of a more complete and systematic fire patrol and signal system and, if necessary, legislation be enacted for that purpose.

d. "That more stringent laws be enacted for the punishment of persons through whose carelessness or negligence forest fires start.

e. "That the governor be empowered to suspend the hunting and fishing season in case of emergency."

Seventh. There should be a law enacted under which the State may control the cutting of trees on private land and clearing up and disposal of the refuse left after lumbering, to the end that danger from fires may be minimized and the forest cover may be retained to protect the watershed and conserve the water supply. This suggestion is based upon the belief that the State has the inherent right, at least in a limited way, to control the use and management of private property for the public good. This principle has been asserted and established by the highest court in Maine and in at least two other States, and seems to be sound doctrine.

Eighth. The rapidly increasing business of the department will require a larger office force, more foresters, and larger appropriations with which to hire power boats. It also seems that the time has come when the State, with the department's greatly increased revenue, can well afford to establish a modern game-bird farm, from which our depleted covers may be stocked.

Ninth. Appropriations for the department will necessarily have to meet the department's activities as new lines of work develop.

We submit this annual report with the satisfaction of knowing that better work was done during the year 1908 than ever before, and with the belief that, in view of the general awakening among all citizens of the State and Nation to the necessity for better protection for forests, fish, and game, advancement in these respects should be more rapid in the future than it has been in the past.

ADDRESS DELIVERED BY MR. JAMES J. HILL BEFORE THE FARMERS' NATIONAL CONGRESS, MADISON, WIS., SEPTEMBER 24, 1908.

It has often happened in gatherings to promote the interest of agriculture or irrigation or waterways or some other national undertaking that so many side issues have crept in as to interfere with the work and weaken the conclusions of the convention. To avoid this error should be your first care, since it can have no effect upon a public that has learned to discount all so-called "official utterances" that are not germane to the body from which they issue and the subject to which they are supposed or pretend to relate; and since a wide scattering of subjects must prevent that full discussion of work and interests which alone can make it worth while for you to assemble in gatherings such as this.

For this reason I will confine myself very closely in what I have to say to the present state of the agricultural interest in this country; to the emergencies which ordinary foresight can distinguish in its near future; and to those remedies and improvements which our knowledge suggests, and which are not merely experimental, but ascertained fact. What we are here for is to consider how to increase the farmer's successes, lessen his failures, and place his work upon the most certain foundation. His occupation is the first to exist in a civilized state. It is the basis of all other industry. And only recently we are coming to realize that it is an exact science. The man no longer deserves the name of farmer who conceives of his industry as a scratching of the earth, a hit-or-miss scattering of seed, and a harvesting of such yield as soil and weather may permit. That is not farming, but a game of chance. This is, therefore, a gathering of representatives of a profession, and as such it is a first duty to consider the place of farm industry in the national economy, and to what extent it is prepared to meet present and future demands upon it. For grave national concerns, the state of civilizations, the condition of social life, and the fate of institutions, as well as the farmer's position and prosperity, will depend upon his readiness to meet the work surely coming in the advancing years.

After an army has been raised and before it can enter upon any campaign, the first consideration is to provide its food. If that is a failure, the bravest and best-organized force will melt away in a week. Our national supply of food, in like manner, is fundamental to the organization of our social life and to the progress of all our industries. Here we have so many people. Here will be, in a few years, so many more. These things are mathematically certain. What demands will they make upon the country, and how well is it prepared to meet them? No question can be so fit for the consideration of a farmers' congress. Indeed, it is difficult to intelligently consider other questions until that one has been settled. And it is far from settled now. Until lately it seems scarcely to have been thought of, and it is generally dismissed with the vague assertion that "things will come out all right, as they always have." A farmers' congress should understand and prepare for the work that lies before the farmer, not in some indefintely distant future, but within this and the next succeeding generation.

It is as well assured as any future event can be that the population of the United States will be 200,000,000 by about the middle of the present century, or in less than fifty years. This is proved by the ratio of increase in the past. It may come a few years later or a few years earlier according to circumstances, for good times lift both the immigration total and the domestic birth rate, while depression decreases both. However, this is immaterial. Millions of persons now living will see the 200,000,000 people here; and the first question is how they are to be fed. There will be many grave problems in such a human growth, but we may for the time being dismiss all the others until we have considered the primary one of the bare maintenance of life. The food problem itself has numerous collateral issues, but for the sake of simplicity we may here consider only the matter of bread. Where and how are we to obtain loaves enough to feed these coming millions?

The average yearly consumption of wheat per capita varies considerably with seasons and prices, but it rises steadily with our constantly advancing standard of comfort. For the last three years it has been either slightly under or slightly over 7 bushels for bread and seed. Suppose that it is 6½ bushels per capita, which is certainly within the mark. It will then require, unless we are to fall to a lower scale of living, a total product of 1,300,000,000 bushels of wheat for our bread supply, if we did not export any. From 1880 to 1906, inclusive, our crop averaged 521,738,000 bushels annually. Twice only in our history have we exceeded the 700,000,000 bushel mark. It is fair to say that 650,000,000 bushels is our present average capacity. Of course, with increasing population may come a somewhat increased total production, though it will not advance as rapidly as many suppose. We grew 504,185,470 bushels in 1882, when our population was a little over 52,000,000, and 634,087,000 bushels in 1907, twenty-five years later. The increase in wheat yield during these years, when much of the new lands of the West was being brought under the plow,

was a little over 25 per cent, while population increased 33,000,000, or over 63 per cent. Obviously supply and demand for bread will not keep pace through the working of any law of nature.

Moreover, the increase of possible wheat yield by increasing acreage is limited. We have no longer an unlimited public domain awaiting the plow. There will be some grown upon reclaimed arid land, though this is mostly devoted to the raising of fruit and fodder plants. There will be some land drained, and there are a few acres of public lands left where wheat may be raised. But a denser population makes new demands upon the soil, and it is more likely, on the whole, that the wheat acreage will be reduced, for raising all the other commodities consumed by 200,000,000 people, than that it will be enlarged. Nothing but a material rise in price could accomplish this, and we may, perhaps, assume that a steady and certain price of $1 or $1.25 per bushel for wheat may raise our total annual product to 900,000,000 bushels, which would be 50 per cent more than its present average. This is the extreme limit of probability. The country could under present methods do no more unless it took land just as necessary for other purposes and devoted it to wheat raising. In that case it would only imitate the man who tried to make the legs of his trousers longer by cutting strips off the bottom and sewing them around the waistband. We are left practically with a shortage of 400,000,000 busbels in our wheat supply, even supposing that we consume every grain that we raise. This amount we should have to procure from some other source. Where are we to get it and how is it to be paid for?

Canada can send us something, but not much. By that time her own population will have grown, and her needs with it, and so will the demand of all the rest of the world. Russia and India and Argentina and Australia together are scarcely keeping up with the world's present necessities. Wheat bread and a high civilization go together; and as labor conditions everywhere improve, more and more people who once lived on black bread or rice will have the white loaf. But if we grant that the additional 400,000,000 bushels of wheat will be supplied from some now undetermined source, wherewith shall the bill be paid? We may assume that by that time an average price of $1.25 per bushel will prevail. This will leave us debtor to somebody in international trade to the amount of $500,000,000. We must be prepared to send abroad that amount of some commodity to foot the bill. We must also make good the deficit occasioned by the cessation of our exports of breadstuffs and provisions. In the year ending June 30, 1908, we exported wheat and wheat flour to the value, in round numbers, of $164,000,000. That will be cut off. So we shall have to find nearly $700,000,000 in all to pay our food bill. That is one-third of the value of our entire exports in the year 1908.

We can not raise this vast amount annually by increasing exports. Already the products of the soil, the minerals and oils taken from the earth, and such raw materials as leather and lumber, drawn immediately from earth's products, constitute two-thirds of our entire export trade. The whole of our exports of manufactured goods other than products of the farm amounted to $480,700,000 in 1907. There is no fiction more firmly fixed in the American mind than that we are capturing foreign markets for our manufactured articles. For the most part we are only artificial competitors, and would have to withdraw from the foreign field if we were obliged to depend upon our own industrial merits. Our factories could not exist and pay the current scale of wages if they received for their total product the prices now charged the foreign purchaser. The American manufacturer markets his surplus abroad for what he can get, and recoups himself by the large profit which a high tariff permits him to charge the home consumer. I do not intend to touch here at all upon the merits or demerits of the tariff as an economic proposition; but I state a mere business fact when I say that the profits secured to the manufacturer in the home market through prices kept high by protection alone enable him to sell even his small surplus of goods in the foreign market. Remove that and our exports of manufactured articles would cease. Already Canada has a law against our dumping surplus manufactures in their markets. On an equal basis we could sell abroad only that small line of machinery which we make better than any other peoples. And the imitative Chinese and Japanese, as well as the workmen of Germany who are now educated in their technical schools, are constantly reducing the demand for our goods. We should never be able to make a much better showing than the figure we now cut in international commerce. Rather we will be more than fortunate to hold our own.

The relative advantage enjoyed in the past by reason of our possession of vast stores of unused raw material is disappearing. The time is approaching when we will be still less able to manufacture in competition with other peoples; when tariff walls could not be built high enough to keep out the intruder without crushing the life out of our own people. It is a matter of fact familiar to all of you that the progressive exhaustion of our forests has multiplied the prices of lumber within the past few years. Every farmer who has built a house or a barn, or even a fence, unless he had the timber for it upon his own holding, has felt the heavy tax. Now, wood is an important item in manufacture, and the cost of production rises with its scarcity. Quite as disturbing is the situation with reference to those other prime necessaries of cheap manufacturing and competition in the world's markets—coal and iron. We are using now nearly 500,000,000 tons of coal annually. At that rate the estimated total supply of the United States would last four thousand years, and we need not disturb ourselves; but experience has shown that our consumption of coal doubles every ten years. That is the statistical record of the past. If it holds good in the future, and there is no reason why it may not, we shall be short of good coal at reasonable prices where it is most wanted before the end of the present century. This is the pinch that Great Britain now feels, in being obliged to resort to lower levels in her coal mines to obtain fuel for her industries at an enhanced cost. So serious is the situation that she is already considering the propriety of an export duty on coal. The same problem will face us in the future of which I am speaking.

Much more pressing is the question of iron supply. This metal is the foundation of the world's industrial life. Our possession of great quantities of rich ore in the most available localities is a great factor in our development. But last year we consumed 50,000,000 tons of iron ore; and at that rate the principal supplies, those in the Lake Superior region, must be exhausted in about forty years. There are nowhere else such large deposits known, and the country has been prospected carefully. Perhaps the largest quantity anywhere outside of the Appalachian country and the great deposits in Minnesota, Wisconsin, and Michigan is in southern Utah. It is believed to amount to about 75,000,000 tons all told. It would last us, at our present rate of consumption, for eighteen months; and consumption of iron is increasing as steadily as that of coal. In 1897 our pig-iron product was 9,652,680 tons; in 1907 it was 25,781,361 tons. It costs now about $7 to transform a ton of Lake Superior iron ore into pig iron, including the cost of mining, transportation, and manufacture. With 60 per cent ore, where 5 tons go to the making of 3 tons of pig, this makes the actual cost of the iron $11.66 per ton. Fifty per cent ore makes iron costing $14 per ton. Forty per cent ore makes iron costing $17.50 per ton. Low-grade ores, like those of the Southern States, can be used commercially because the ore, limestone, and coal are found in close proximity, thus reducing the cost of manufacture.

But it is impossible for any of our product to compete to-day in the world's markets. The average selling price in 1907 of the cheapest grades of pig iron made in the United States was $21.06 per ton; of the best, $23.89. In Belgium, where the cost of manufacture is decreasing all the time, the latest available statistics, those for 1905, show that the average market value of the country's entire pig-iron product was $11.64 per ton. Such a contrast mocks the idea of competition. In no year of the last ten has any such average price been known in the United States. Again, the experience of Great Britain is instructive. She is obliged to-day to import one-half as much iron ore as she produces. She exports practically none; she obtained in round numbers 6,000,000 tons from Spain in 1906. The changes in her industrial condition have at this moment reduced Glasgow to treat with a besieging army of the unemployed, have brought 4,000 men in London to answer in person an advertisement for a porter at $4.50 a week, and have practically given the Government over to a growing socialism. We are not in that plight yet; but we are already where we can not, without changing our wage scale and revolutionizing our industrial system, produce pig iron cheaply enough to compete with Europe. And forty or fifty years hence, with our enormously increased demand for the metal that has made progress possible, and our depletion of its supply, we shall be in no position to meet the foreigner in trade or to furnish from this source a fund to purchase food.

It is sufficient to state conditions thus broadly. They enforce their own conclusions. All the important items in consumption and in export show that we have a hard master to reckon with by the middle of this century, and that we must develop from some quarter occupation and a food supply for more than 110,000,000 additional people. It should be such as will maintain a standard of living no lower than that which now prevails if we are not to witness terrible social and political convulsions.

It is as clear as any future event can be that the farm is the only hope of our national salvation. Just as it is to-day the real source of our wealth, the mainspring of our domestic commerce that exceeds the trade of all Europe combined, so must we draw upon it for coming needs. All else suffers progressive exhaustion and will be a poorer dependence a generation hence than it is to-day. The soil alone renews itself, endures patiently, and is capable of yielding increasing rewards to industry as agriculture conforms more closely to the principles that science and experience have developed. The products of the earth and the population of the earth may increase together, so that the one will support the other. It is the sole escape from the melancholy conclusion to which Malthus was forced long ago because, in his time, the possibilities of modern soil culture were not understood.

Here, then, is the problem, here the labor for a farmers' congress. This is your work. You must show how to make good the scarcity of food supply. To this occupation the country must look not only for bread but for employment, for the means of advancement, for stability of institutions, and for individual happiness. The farmer must furnish an additional $600,000,000 which we have seen will be necessary by 1950 to sustain the people. The task is stupendous. Yet it will not be found very difficult if we go to work in the right way.

I have stated the national problem in terms of wheat; its solution admits of similar statement. The average yield of wheat per acre in the United States in 1907 was 14 bushels. The average for the last ten years has been 13.188; that is, in 1907 it required 45,211,000 acres to produce the 634,087,000 bushels that we raised. It is a disgraceful record. About a century ago this was the average production per acre of Great Britain. After the appointment of a royal commission and a campaign for better methods of cultivation begun over a hundred years ago, to-day the fields of the United Kingdom, tilled for a thousand years, in a climate whose excessive moisture is unfavorable to the wheat farmer, yield over 32 bushels of wheat per acre. Germany, an agricultural country almost since the time of Tacitus, produces 27.6 bushels per acre. Suppose that the United States produced 28 bushels, or double its present showing. That would be no extraordinary record, in view of what European countries have done with inferior soils and less favorable climates. It would have added 634,000,000 bushels to our product last year. Here we perceive the answer to the question that the future asks. Here we see how the 200,000,000 people, or thereabouts in the year 1950 are to be fed. Here we see where the money must come from for our national support. It must be earned by and paid to the farmers of this country. Only thus may be escape an economic calamity more threatening and more real than the people realize. It will not come by wishing for it or by lawmaking or in any other way than through labor intelligently applied. It implies a greatly different agriculture from that which now prevails.

To reach an average yield of from 20 to 30 bushels of wheat per acre in this country is as feasible as to increase capital by lending money at interest. How it may be done has been explained so often and is to-day so thoroughly taught in every agricultural college and at every experiment station in the country that one almost hesitates to repeat it. I am not now referring to market gardening or the intensive agriculture properly so-called, by which marvelous results have been obtained, which, in the island of Jersey, gives an annual income of $250 per acre. It is possible to grow from 1,000 to 2,000 grains of wheat from a single grain of seed. There are rumors of experiments in Russia with deep planting that leave this far behind and even hint at transforming the wheat plant into a perennial.

But leaving these extremes to the enthusiast or the experimenter, we can double our wheat yield by nothing more difficult than a better system of farming. The essentials of it are a study of soils and seeds, so as to adapt one to the other; a diversification of industry, including the cultivation of different crops and the raising of live stock; a careful rotation of crops, so that the land will not be worn out by successive years of single cropping; intelligent fertilizing by this system of rotation, by cultivating leguminous plants, and above all by the economy and use of every particle of fertilizing material from the stock barns and yards; a careful selection of grain used for seed; and, first of all in importance, the substitution of the small farm, thoroughly tilled, for the large farm, with its weeds, its neglected corners, its abused soil, and its thin product. The last makes room for the new population, whose added product will help to restore our place as an exporter of foodstuffs. The fruit farmer, the truck farmer, every cultivator of the soil who has specialized his work, has learned to put these rules into practice as a matter of course. How to impress their force upon the

30,000,000 or more persons who cultivate the land in this country is the problem. It is no longer one of method. Science has settled that and is adding more and more of value every year. It is merely how to move the farmer to apply to his own profit and the rescue of the Nation the better methods that are a familiar story.

It should appeal to him that the modern system is both a money-maker and a labor saver. The cost of rent and production for continuous wheat cropping averages $7.50 per acre. When, therefore, the farmer obtains, as so many of those in the Northwest do, a yield of 8 or 10 bushels per acre, it just about meets, at average farm prices, the cost of production, leaving him either nothing at all for his year's toil or else a margin of debt. For the same amount of labor, covering the same time but intelligently applied to a smaller area, he might easily produce by improved methods 20 bushels per acre, leaving him a profit of over $12. The not unreasonable yield of 28 bushels would net him $20, which is 10 per cent on a valuation of $200 per acre for his land. This gigantic waste, applying the same measure to the production of the entire country, is going on every year. If such associations as this Congress can stop it, it will pay for building two Panama canals every year; it will in two years more than pay the estimated expenses of improving every available waterway in the United States; it will save more money to the farmer than the railroads could if they carried all his grain to market free of charge.

What is true of wheat is true of all the other products of the farm. The splendid work done in this State where we are met is to the point. The average yield of corn in Wisconsin has been raised, by the application of scientific methods, from 27 to 47 bushels per acre. The new value thus created in a single State for a single year amounts to about $15,000,000. I need not go into other details, because they are similar in kind and anyone may examine them for himself. Such increase of the national wealth, such additional reward for labor, waits upon the adoption of the best methods in every department of agriculture. Other peoples have been quicker to learn it than we. Denmark has an area of less than 16,000 square miles, a little less than one-fifth that of Minnesota, and a population in 1906 of 2,605,268. Only 80 per cent of her area is productive, and her population is 167 per square mile. Yet, in 1906, she sent abroad over $80,000,000 worth of her home product of provisions and eggs. Great Britain bought from her that year butter to the amount of $48,000,000, and bacon worth over $21,000,000. It is interesting in this connection to note that, though her population is so dense, there were in 1905 but 754 men and 69 women in her penitentiaries.

The Netherlands is a still more closely compacted population of 5,672,237 on an area of 12,648 square miles, or 448 per square mile. The advantage of this is that it forces small holdings and a more thorough tillage. The average wheat yield in the Netherlands is 34.18 bushels as against our 14; she produces an average of 53.1 bushels of oats per acre, where we are satisfied with 23.7 bushels in 1907, and an average of less than 30 bushels for the preceding ten years; her farmers gather 232 bushels of potatoes from every acre so planted, while in this country, with soil capable of fabulous yields, we took in 95.4 bushels last year and averaged a trifle less than 96 bushels for the last six years. The difference between 95 bushels and 230 bushels, at 50 cents a bushel, is over $60 per acre. Rather a heavy loss to pay for poor farming. It is not to be wondered at that the Netherlands, hardly larger than a big county out West, after deducting enough for home consumption, exported more than $140,000,000 worth of cereals, flour, butter, and cheese, and that her people do not have to pay any poor rates.

To such a height we can bring the productivity of many of our own fields. When we have done so, and only then, will the specters that haunt our future vanish, and the questions that it now puts to us receive an answer worthy of men careful of their future and thoughtful for their race. Every respectable authority on agriculture in the country will indorse this statement. But at present we are doing little practically, out on the land, among the farmers, to accomplish the change, the revolution in ideas and methods that is involved.

It seems to me that this is the paramount duty and mission of an organization such as this. It could well afford to throw aside most other issues presented for its consideration, refuse to spend time upon alien or abstract questions, and concentrate its energies and resources upon a campaign for better farming in the United States. For, indeed, this reform makes way slowly. It required over half a century in Great Britain to bring it about, although aided by the influence of the great landed proprietors. It is no new doctrine in this country. I have been urging the essentials of better farming upon our whole people at every opportunity for more than twenty-five years. In all the agricultural colleges of the country it is taught. Farmers' institutes have done much to make it known. And still bad methods, soil exhaustion, skimming the cream of the land by single cropping, are the rule instead of the exception. The once matchless fields of the Northwest are deteriorating. The average wheat yield has fallen on some of our best land from 25 bushels or more to about 12. Something must be done to reverse the process. By constant iteration of well-established truths, by the appeal to self-interest, since the farmer can double his own gains for the same labor, by endless agitation and patient instruction the work may be accomplished. That it must be done is the most important fact confronting us as a nation to-day. The armed fleets of an enemy approaching our harbors would be no more alarming than the relentless advance of a day when we shall have neither food nor the means to purchase it for our own population. The farmers of the Nation must save it in the future, as they have built its greatness in the past.

My suggestion, then, would be that each one of you individually and this association as a whole subordinate every activity to the educative idea; that you expend energy and resources without stint upon spreading everywhere a knowledge of the necessity, the feasibility, and the financial profit of improved farming methods. Work with your Senators and Representatives, and with your state legislatures, if necessary, for the establishment of model farms in every congressional district, and if possible in every agricultural county in your respective States. Nothing would be so effective as this practical object lesson. Every slack farmer would see the contrast between its fields and his own. Every man with a germ of intelligence would get more ideas and facts and insight into methods and the reason for them in a year by living as a neighbor to a well-run model farm, conducted by an expert in agriculture, than he would in a lifetime from reading books or listening to stump speeches. Above everything else, send your boys and girls, and insist that the farmers whom you know and can influence shall send theirs, to the agricultural colleges where modern systems of tillage are taught.

The opportunity is ample. There are 63 colleges and universities now receiving aid under acts of Congress as a condition of maintaining a course in agriculture. Keep them, if you possibly can, good agricultural schools, and save them from the temptation of trying to ape the airs of the university. They are to-day the most useful, the most fruitful educational institutions in the country. See that the children of the farm go where they will not be taught to despise the soil or long for a future freed from its labors, but will learn the fact, now being fully understood, that the right kind of farming offers scope for the keenest intelligence, occupation for the most active brain, and opportunity and reward for the highest ambition.

After all it is to the next generation mainly that we must look for the transformation of our greatest and most vital industry, though something may be done with this. In both fields, the man who assumes to be the farmer's friend or hold his interests dear will constitute himself a missionary of the new dispensation. It is an act of patriotic service to the country. It is a contribution to the welfare of all humanity, and will strengthen the pillars of a government that must otherwise waver in some popular upheaval when the land shall no longer sustain the multiplying children that its bosom bears. It is a high commission that is offered to you. By accepting it you will confer new dignity, worth, and satisfaction upon the calling in whose name you are gathered here, and help to garner health and comfort and happiness and an opportunity greater than our own for the coming millions, who are no strangers or invaders, but our own children's children, who will pass judgment upon us according to what we have made of the world in which their lot is to be cast.

Mr. BURLESON. Mr. Chairman, I desire to offer an amendment.

The CHAIRMAN. The Clerk will report the amendment.

The Clerk read as follows:

Line 24, page 3, after the word "bureau," insert the word "five;" and after the word "dollars" add the words "$1,000 additional while the office is held by the present incumbent."

Mr. BURLESON. Mr. Chairman, I have a few words——

Mr. MACON. Mr. Chairman, I reserve a point of order on the amendment offered by the gentleman from Texas.

Mr. BURLESON. This position is the only one in the department that is——

Mr. MACON. Mr. Chairman, I reserve a point of order.

Mr. BURLESON. It is too late; I was on my feet and addressing the committee on the amendment before the point of order was raised.

Mr. MACON. I was on my feet at the same time; I was on my feet before the gentleman started to speak.

The CHAIRMAN. If the gentleman from Arkansas was on his feet trying to receive recognition, then the Chair must rule that he was in time.

Mr. MACON. I insist that the moment the last word of the amendment fell from the Clerk's lips I reserved a point of order.

Mr. BURLESON. I want to submit an appeal to the gentleman from Arkansas [Mr. MACON] not to press the point of order. I do not subscribe to the proposition, though, that the point of order was reserved in time, but I will not take advantage of it. If the gentleman wants to reserve a point of order, I am perfectly willing that he should do it.

Mr. MACON. Does the gentleman question my statement?

Mr. BURLESON. I say that if the gentleman wants to reserve the point, I am perfectly willing that he should do so. However, I want to submit this suggestion to the gentleman from Arkansas, the Chief of the Weather Bureau is the only bureau chief in the Department of Agriculture who, under the law, can be called to act as Secretary in the absence of the Secretary. I want to direct his attention to the fact that in every other department in the Government where an assistant secretary or any other official under law can be called to act in the capacity of secretary, that assistant or other official receives a salary in excess of $5,000. As a matter of fact, Professor Moore is the only bureau chief in the Department of Agriculture who can in the absence of his chief act under the law in his stead.

In every instance, in other departments, those who, under law, can act as Secretary are receiving a higher salary than is paid Professor Moore. Six thousand dollars is the minimum salary paid for this service. Now, I submit to the gentleman from Arkansas that this is a discrimination against this particular official. I appeal to the gentleman's sense of fairness. Is it right that in the Department of Agriculture alone the official who acts as Secretary shall receive a smaller compensation than is allowed in every other department? In the light of this fact, I want to ask the gentleman if he will not withdraw the point of order?

Mr. MACON. Mr. Chairman, I notice here on the first page of this bill a provision providing for an—

Assistant Secretary of Agriculture, at $5,000.

Now, if he is not the proper official to take the place of the Secretary, instead of Mr. Moore, and does not take the place of the Secretary during his absence, then I would like to know what he is designated and appropriated for?

Mr. BURLESON. I will say to the gentleman that, so far as I am concerned, I have no objection to the increase of the salary of the Assistant Secretary; but that does not overturn the point

I make, namely, that in no other department but the Agricultural Department, where an official can be called upon to act as Secretary, does that official receive less than $6,000.

Mr. MACON. I think you are attempting to discriminate against the Assistant Secretary and against the other chiefs of bureaus of this department when you attempt to increase the salary of this officer. I want to say further, Mr. Chairman, since I have felt called upon to act in this matter, that the gentleman from Texas ought himself to have very little respect for me if when I say that I am opposed to and have consistently opposed the increase of all salaries of all the officers of the Government when the revenues of the country are so depleted that they will not justify anything of the kind, if I were to allow this salary to be increased while I oppose the increase of others; if I were to make fish of one and fowl of another.

Mr. BURLESON. If the gentleman will permit, if I can show a discrimination being practiced against this department, surely that is a consideration that ought to weigh with the gentleman.

Mr. MACON. I can not see how any discrimination could be practiced against anyone who has for sixteen long years received a fine salary at the hands of his employer, without any expense whatever to himself to obtain it, without any expense or trouble of travel, without having to leave the place of his employment, without having to be deprived of the society and comforts of home and family—I can not see, to save my life, how a man who has been served by his Government in this way for sixteen years can say he is discriminated against because Congress refuses to increase his salary at a time when it is not proper for it to increase salaries. Again, I have not been able to see where the discrimination comes in. This gentleman is performing the duties of his office satisfactorily, no doubt. But the same may be said of many other employees of the Government. It seems, Mr. Chairman, that the officer or employee whose salary it is proposed to increase is the very best officer or employee in the service of the Government. I undertake to say now that if some one were to move to increase the salary of the Chief of the Bureau of Plant Industry that he would be proclaimed——

Mr. MANN. It ought to be increased, too——

Mr. MACON (continuing). To be the best officer in the service of the Government.

Mr. MANN. And would not be wrong in saying it.

Mr. MACON. I do not know that they would, but it would be the same with anyone else whose salary any Member of the House might propose to increase. If you can show where there is any discrimination against this gentleman, I am ready to be shown. I have not been up to this time.

Mr. BURLESON. I take the gentleman at his word.

Mr. MACON. I do not ask you to take it.

Mr. BURLESON. I take the gentleman at his word on that proposition. The gentleman evidently did not understand what I said, or he would certainly not so propose. There is no other department of the Government where in the absence of the Secretary the official who is called upon under the law to act for such Secretary is not receiving $6,000 or more.

Mr. MACON. Here is one right before me. The Assistant Secretary, who has to act in the absence of the Secretary—he does not receive but $5,000.

Mr. BURLESON. That is the very point I am making; a discrimination is being practiced against all these officials in the Agricultural Department.

Mr. MACON. Here is the Assistant Secretary of Agriculture, who is only getting $5,000, as stated a moment ago; and when you offer to raise this other salary you discriminate against him.

Mr. Chairman, consistency and economy demand that I insist upon the point of order. [Applause.]

Mr. MANN. Will the gentleman reserve the point of order?

The CHAIRMAN. The Chair sustains the point of order.

Mr. SCOTT. I ask that the word "five" be substituted for the word "six" in this item.

The CHAIRMAN. Without objection, it will be so ordered.

There was no objection.

Mr. SCOTT. Mr. Chairman, I move that the committee do now rise.

The motion was agreed to.

The committee accordingly rose; and the Speaker having resumed the chair, Mr. FOSTER of Vermont, Chairman of the Committee of the Whole House on the state of the Union, reported that that committee had had under consideration the agricultural appropriation bill (H. R. 27053) and had come to no resolution thereon.

SENATE JOINT RESOLUTION AND BILL AND HOUSE JOINT RESOLUTION REFERRED.

Under clause 2, Rule XXIV, Senate joint resolution and Senate bill and House joint resolution with Senate amendments were taken from the Speaker's table and referred to their appropriate committees, as indicated below:

S. R. 102. Joint resolution proposing an amendment to the Constitution of the United States respecting the succession to the Presidency in certain cases—to the Committee on Election of President, Vice-President, and Representatives in Congress.

S. 7883. An act to authorize the Secretary of the Interior to construct a bridge across the Little Colorado River, abutting on the Navajo Indian Reservation, in the Territory of Arizona, and for other purposes—to the Committee on Indian Affairs.

H. J. Res. 247. Joint resolution relating to the celebration of the one hundredth anniversary of the birth of Abraham Lincoln and making the 12th day of February, 1909, a legal holiday, and for other purposes—to the Committee on the Library.

ENROLLED BILLS SIGNED.

Mr. WILSON of Illinois, from the Committee on Enrolled Bills, reported that they had examined and found truly enrolled bills of the following titles, when the Speaker signed the same:

H. R. 10986. An act for the relief of L. H. Lewis;

H. R. 10987. An act for the relief of A. A. Lewis;

H. R. 13319. An act for the relief of the heirs of Thomas J. Miller;

H. R. 4119. An act to pay John Wagner, of Campbell Hall, N. Y., for carrying the mails;

H. R. 8050. An act for the relief of James R. Wyrick;

H. R. 19095. An act authorizing the Secretary of the Interior to sell isolated tracts of land within the Nez Perces Indian Reservation;

H. R. 13955. An act to compensate E. C. Sturges for property lost during the Spanish-American war;

H. R. 17344. An act for the relief of Frederick Daubert;

H. R. 19893. An act for the relief of Thomas J. Shocker;

H. R. 15448. An act to amend section 12 of an act entitled "An act to provide for eliminating certain grade crossings on the line of the Baltimore and Potomac Railway Company in the city of Washington, D. C., and requiring said company to depress and elevate its tracks, and to enable it to relocate parts of its railroad therein, and for other purposes," approved February 12, 1901;

H. R. 10606. An act for the relief of Robert S. Dame;

H. R. 6032. An act to pay to the administratrix of the estate of George W. Fleming for services rendered as letter-box inspector from March 29, 1902, to June 13, 1903;

H. R. 17297. An act authorizing the extension of New York avenue from its present terminus near Fourth street NE. to the Bladensburg road;

H. R. 7807. An act to place John Crowley on the retired list of the United States Navy;

H. R. 7963. An act for the relief of Patrick Conlin;

H. R. 7006. An act to correct the military record of George W. Hedrick;

H. R. 10416. An act to correct the naval record of Lieut. Hilary Williams, U. S. Navy;

H. R. 16927. An act for the relief of Lieut. Commander Kenneth McAlpine;

H. R. 19839. An act for the relief of W. H. Blurock;

H. R. 14361. An act to reimburse the Eastern Salt Company, of Boston, Mass., for certain excess duty;

H. R. 23711. An act to build a bridge across the Santee River, South Carolina;

H. R. 27427. An act to prohibit the importation and use of opium for other than medicinal purposes;

H. R. 24635. An act to create a new division in the middle judicial district of the State of Tennessee; and

H. R. 24303. An act for the relief of the estate of Charles Fitzgerald.

The SPEAKER announced his signature to enrolled bills of the following titles:

S. 8333. An act to authorize the Edgewater Connecting Railway Company to construct, maintain, and operate a railroad bridge across the Kansas River at or near Kansas City, Kans., in the county of Wyandotte, State of Kansas; and

S. 6418. An act authorizing the sale of lands at the head of Cordova Bay, in the Territory of Alaska, and for other purposes.

ENROLLED BILLS PRESENTED TO THE PRESIDENT FOR HIS APPROVAL.

Mr. WILSON of Illinois, from the Committee on Enrolled Bills, reported that this day they had presented to the President of the United States for his approval the following bills:

H. R. 10416. An act to correct the naval record of Lieut. Hilary Williams, U. S. Navy;

H. R. 8050. An act for the relief of James R. Wyrick;
H. R. 23711. An act to build a bridge across the Santee River, South Carolina;
H. R. 7963. An act for the relief of Patrick Conlin;
H. R. 7807. An act to place John Crowley on the retired list of the United States Navy;
H. R. 7006. An act to correct the military record of George W. Hedrick;
H. R. 6032. An act to pay to the administratrix of the estate of George W. Fleming for services rendered as letter-box inspector from March 29, 1902, to June 13, 1903;
H. R. 4119. An act to pay John Wagner, of Campbell Hall, N. Y., for carrying the mails;
H. R. 26062. An act authorizing the creation of a land district in the State of South Dakota, to be known as the Bellefourche land district;
H. R. 19839. An act for the relief of W. H. Blurock;
H. R. 19893. An act for the relief of Thomas J. Shocker;
H. R. 19095. An act authorizing the Secretary of the Interior to sell isolated tracts of land within the Nez Perces Indian Reservation;
H. R. 17344. An act for the relief of Frederick Daubert;
H. R. 17297. An act authorizing the extension of New York avenue from its present terminus near Fourth street NE. to the Bladensburg road;
H. R. 16927. An act for the relief of Lieut. Commander Kenneth McAlpine;
H. R. 15448. An act to amend section 12 of an act entitled "An act to provide for eliminating certain grade crossings on the line of the Baltimore and Potomac Railway Company in the city of Washington, D. C., and requiring said company to depress and elevate its tracks, and to enable it to relocate parts of its railroad therein, and for other purposes," approved February 12, 1901;
H. R. 14361. An act to reimburse the Eastern Salt Company, of Boston, Mass., for certain excess duty;
H. R. 13955. An act to compensate E. C. Sturges for property lost during the Spanish-American war;
H. R. 13319. An act for the relief of the heirs of Thomas J. Miller;
H. R. 10987. An act for the relief of A. A. Lewis;
H. R. 10986. An act for the relief of L. H. Lewis; and
H. R. 10606. An act for the relief of Robert S. Dame.

SENATE BILLS AND RESOLUTIONS REFERRED.

Under clause 2, Rule XXIV, Senate bills and resolutions of the following titles were taken from the Speaker's table and referred to their appropriate committees, as indicated below:

S. 8356. An act to enable the Omaha Indians to protect from overflow their tribal and allotted lands located within the boundaries of any drainage district in Nebraska—to the Committee on Indian Affairs.

S. 5510. An act for the relief of the owners of the tug *Juno*—to the Committee on Claims.

S. R. 122. Joint resolution to enable the Secretary of the Senate and Clerk of the House of Representatives to pay the necessary expense of the inaugural ceremonies of the President of the United States, March 4, 1909—to the Committee on Appropriations.

Senate concurrent resolution 85.

Resolved by the Senate (the House of Representatives concurring), That the Secretary of War be, and he is hereby, directed to cause a survey to be made of the harbor at Anacortes, Wash., to determine the cost and advisability of its improvement—

to the Committee on Rivers and Harbors.

ADJOURNMENT.

Mr. SCOTT. Mr. Speaker, I move that the House do now adjourn.

The motion was agreed to.

Accordingly (at 5 o'clock and 29 minutes p. m.) the House adjourned.

EXECUTIVE COMMUNICATIONS, ETC.

Under clause 2 of Rule XXIV, a letter from the Secretary of War, transmitting correspondence, etc., relating to the payment of certain claims in Panama (H. Doc. No. 1411), was taken from the Speaker's table, referred to the Committee on Claims, and ordered to be printed.

REPORTS OF COMMITTEES ON PUBLIC BILLS AND RESOLUTIONS.

Under clause 2 of Rule XIII, bills and resolutions were severally reported from committees, delivered to the Clerk, and referred to the several calendars therein named, as follows:

Mr. BANNON, from the Committee on the Judiciary, to which was referred the bill of the House (H. R. 16274) to amend section 10 of chapter 252, volume 29, of Public Statutes at Large, reported the same with amendments, accompanied by a report (No. 2025), which said bill and report were referred to the Committee of the Whole House on the state of the Union.

Messrs. WEEKS and LEVER, from the Committee on Agriculture, to which was referred the bill of the Senate (S. 4825) for acquiring national forests in the Southern Appalachian Mountains and White Mountains, reported the same with amendments, accompanied by a report (No. 2027), which said bill and report were referred to the Committee on the Whole House on the state of the Union.

Mr. FOSTER of Indiana, from the Committee on the District of Columbia, to which was referred the bill of the House (H. R. 23864) authorizing the widening and extension of Minnesota avenue SE. from its present terminus near Pennsylvania avenue SE. to the Sheriff road, reported the same with amendments, accompanied by a report (No. 2031) which said bill and report were referred to the Committee of the Whole House on the state of the Union.

He also, from the same committee, to which was referred the bill of the House (H. R. 24152) for the widening and extension of Massachusetts avenue SE. from its present terminus near Fortieth street SE. to Bowen road, reported the same with amendments, accompanied by a report (No. 2032), which said bill and report were referred to the Committee of the Whole House on the state of the Union.

Mr. DAVIDSON, from the Committee on Railways and Canals, to which was referred the bill of the House (H. R. 24853) to amend the charter of the Lake Erie and Ohio River Ship Canal Company, approved June 30, 1906, reported the same without amendment, accompanied by a report (No. 2022), which said bill and report were referred to the House Calendar.

Mr. DE ARMOND, from the Committee on the Judiciary, to which was referred the bill of the House (H. R. 27425) to provide for the parole of juvenile offenders committed to the National Training School for Boys, Washington, D. C., and for other purposes, reported the same without amendment, accompanied by a report (No. 2029), which said bill and report were referred to the House Calendar.

Mr. STERLING, from the Committee on the Judiciary, to which was referred the joint resolution of the House (H. J. Res. 249) to enable the States of Illinois, Indiana, and Michigan to determine the jurisdiction of crimes committed on Lake Michigan, reported the same without amendment, accompanied by a report (No. 2030), which said joint resolution and report were referred to the House Calendar.

Mr. BRANTLEY, from the Committee on the Judiciary, to which was referred the bill of the House (H. R. 21589) to repeal section 802 of the Revised Statutes and to provide for the return of jurors to serve in the courts of the United States, reported the same with amendments, accompanied by a report (No. 2034), which said bill and report were referred to the House Calendar.

REPORTS OF COMMITTEES ON PRIVATE BILLS AND RESOLUTIONS.

Under clause 2 of Rule XIII, private bills and resolutions were severally reported from committees, delivered to the Clerk, and referred to the Committee of the Whole House, as follows:

Mr. FRENCH, from the Committee on the Public Lands, to which was referred the bill of the Senate (S. 4312) for the relief of William E. Moses, reported the same without amendment, accompanied by a report (No. 2023), which said bill and report were referred to the Private Calendar.

He also, from the same committee, to which was referred the bill of the Senate (S. 4313) for the relief of John V. Vickers, reported the same without amendment, accompanied by a report (No. 2024), which said bill and report were referred to the Private Calendar.

Mr. CUSHMAN, from the Committee on Private Land Claims, to which was referred the bill of the House (H. R. 27252) for the relief of Francisco Krebs and his heirs and assigns, reported the same without amendment, accompanied by a report (No. 2028), which said bill and report were referred to the Private Calendar.

Mr. HAWLEY, from the Committee on Claims, to which was referred the bill of the Senate (S. 890) for the relief of William Boldenweck, assistant treasurer of the United States at Chicago, reported the same without amendment, accompanied by a report (No. 2033), which said bill and report were referred to the Private Calendar.

Mr. FRENCH, from the Committee on the Public Lands, to which was referred the bill of the House (H. R. 26516) authorizing Daniel W. Abbott to make homestead entry, reported the

same without amendment, accompanied by a report (No. 2035), which said bill and report were referred to the Private Calendar.

CHANGE OF REFERENCE.

Under clause 2 of Rule XXII, committees were discharged from the consideration of the following bills, which were referred as follows:

A bill (H. R. 26055) granting an increase of pension to Mary E. Balch—Committee on Invalid Pensions discharged, and referred to the Committee on Pensions.

A bill (H. R. 27518) granting a pension to Ethel K. Guerin—Committee on Invalid Pensions discharged, and referred to the Committee on Pensions.

A bill (H. R. 27552) granting a pension to Ann Rager—Committee on Invalid Pensions discharged, and referred to the Committee on Pensions.

A bill (H. R. 27356) granting an increase of pension to Thomas Kelly—Committee on Pensions discharged, and referred to the Committee on Invalid Pensions.

PUBLIC BILLS, RESOLUTIONS, AND MEMORIALS.

Under clause 3 of Rule XXII, bills, resolutions, and memorials of the following titles were introduced and severally referred as follows:

By Mr. ANDREWS: A bill (H. R. 27600) pensioning the surviving officers and enlisted men of the New Mexico and Arizona Volunteers employed in the defense of the frontier of the Territories of New Mexico and Arizona against Mexican marauders and Indian depredations from 1855 to 1890, inclusive, and for other purposes—to the Committee on Pensions.

By Mr. STAFFORD: A bill (H. R. 27601) to authorize the establishment of a light signal and to provide for the reconstruction of the light-house at North Point, Milwaukee, Wis.—to the Committee on Interstate and Foreign Commerce.

By Mr. SIMS: A bill (H. R. 27602) for the extension of Albemarle street from Wisconsin avenue to the east line of Thirty-ninth street NW.—to the Committee on the District of Columbia.

By Mr. HUMPHREY of Washington: A bill (H. R. 27603) to amend "An act making appropriations for sundry civil expenses of the Government for the fiscal year ending June 30, 1909, and for other purposes," approved May 27, 1908—to the Committee on Industrial Arts and Expositions.

By Mr. McGUIRE: A bill (H. R. 27604) to establish in the Department of Agriculture a bureau to be known as the bureau of public highways, and to provide for national aid in the improvement of the public roads—to the Committee on Agriculture.

By Mr. HEFLIN: A bill (H. R. 27605) to provide for collecting statistics from the manufacturers of cotton goods in the United States—to the Committee on Agriculture.

By Mr. HAWLEY: A bill (H. R. 27606) to authorize the sale of certain lands belonging to the Indians on the Siletz Indian Reservation, in the State of Oregon—to the Committee on Indian Affairs.

By Mr. HAMILTON of Michigan: A bill (H. R. 27607) to enable the people of New Mexico to form a constitution and state government and be admitted into the Union on an equal footing with the original States, and to enable the people of Arizona to form a constitution and state government and be admitted into the Union on an equal footing with the original States—to the Committee on the Territories.

By Mr. SULLOWAY: Resolution (H. Res. 533) for the appointment of a stenographer to the Committee on Invalid Pensions—to the Committee on Accounts.

By Mr. CASSEL: Resolution (H. Res. 534) for the purchase of Matthews' Legislative, Pension, and Postal Docket, etc.—to the Committee on Accounts.

By Mr. FOELKER: Resolution (H. Res. 535) to pay to U. Grant Smith a certain sum of money—to the Committee on Accounts.

By Mr. GAINES of Tennessee: Resolution (H. Res. 536) authorizing the Committee on the Judiciary to investigate and report regarding certain corporations—to the Committee on Rules.

By Mr. HAMILTON of Michigan: Resolution (H. Res. 537) providing for the consideration of the bill H. R. 27607—to the Committee on Rules.

By Mr. GRONNA: Memorial of the legislature of North Dakota, for the passage of a bill giving clear title to lands in North Dakota not classified as coal lands before being entered—to the Committee on the Public Lands.

PRIVATE BILLS AND RESOLUTIONS.

Under clause 1 of Rule XXII, private bills and resolutions of the following titles were introduced and severally referred as follows:

By Mr. ANDREWS: A bill (H. R. 27608) granting an increase of pension to Reuben S. Palmer—to the Committee on Invalid Pensions.

By Mr. ANSBERRY: A bill (H. R. 27609) granting an increase of pension to John Hepler—to the Committee on Invalid Pensions.

Also, a bill (H. R. 27610) granting an increase of pension to Lafayette Riker—to the Committee on Invalid Pensions.

Also, a bill (H. R. 27611) granting a pension to George W. Willets—to the Committee on Pensions.

By Mr. BATES: A bill (H. R. 27612) granting an increase of pension to Edgar A. Sheldon—to the Committee on Invalid Pensions.

Also, a bill (H. R. 27613) granting an increase of pension to Oscar E. Mitchell—to the Committee on Invalid Pensions.

By Mr. BURTON of Delaware: A bill (H. R. 27614) granting a pension to Sarah J. Vaughan—to the Committee on Invalid Pensions.

By Mr. CARY: A bill (H. R. 27615) granting an increase of pension to John F. Hoben—to the Committee on Invalid Pensions.

By Mr. COOPER of Wisconsin: A bill (H. R. 27616) granting an increase of pension to George N. Stork—to the Committee on Invalid Pensions.

By Mr. CRAVENS: A bill (H. R. 27617) for the relief of the estate of Dorothy Davis, deceased—to the Committee on War Claims.

By Mr. DIXON: A bill (H R. 27618) granting an increase of pension to Jonathan C. Chasteen—to the Committee on Invalid Pensions.

Also, a bill (H. R. 27619) granting an increase of pension to Nathan F. Carter—to the Committee on Invalid Pensions.

Also, a bill (H. R. 27620) granting an increase of pension to Martha Russell—to the Committee on Invalid Pensions.

Also, a bill (H. R. 27621) granting an increase of pension to Lewis H. Jones—to the Committee on Invalid Pensions.

Also, a bill (H. R. 27622) granting an increase of pension to Andrew Carpenter—to the Committee on Invalid Pensions.

Also, a bill (H. R. 27623) granting an increase of pension to Johnson White—to the Committee on Invalid Pensions.

Also, a bill (H. R. 27624) granting a pension to Elymas F. Wilkins—to the Committee on Invalid Pensions.

Also, a bill (H. R. 27625) to restore Lieut. James Hampton to the pension roll—to the Committee on Invalid Pensions.

By Mr. DRISCOLL: A bill (H. R. 27626) granting an increase of pension to William H. Watkins—to the Committee on Invalid Pensions.

By Mr. EDWARDS of Georgia: A bill (H. R. 27627) for the relief of R. Boatright—to the Committee on War Claims.

Also, a bill (H. R. 27628) granting an increase of pension to John S. Lewis—to the Committee on Pensions.

By Mr. GARDNER of New Jersey: A bill (H. R. 27629) for the relief of Rear-Admiral John J. Read, U. S. Navy, retired—to the Committee on Claims.

Also, a bill (H. R. 27630) granting an increase of pension to Kate G. Beugless—to the Committee on Pensions.

By Mr. GUERNSEY: A bill (H. R. 27631) granting an increase of pension to James J. Reeves—to the Committee on Invalid Pensions.

By Mr. HAMLIN: A bill (H. R. 27632) granting an increase of pension to Jonathan C. Crane—to the Committee on Invalid Pensions.

By Mr. HULL of Tennessee: A bill (H. R. 27633) granting a pension to Henry M. Allen—to the Committee on Invalid Pensions.

Also, a bill (H. R. 27634) granting an increase of pension to Andrew F. Byers—to the Committee on Invalid Pensions.

By Mr. JONES of Virginia: A bill (H. R. 27635) for the relief of the heirs of Dr. Robert H. Power, deceased—to the Committee on War Claims.

By Mr. KIMBALL: A bill (H. R. 27636) granting an increase of pension to Christopher T. Grinstead—to the Committee on Invalid Pensions.

By Mr. KIPP: A bill (H. R. 27637) granting an increase of pension to Edward F. Smith—to the Committee on Invalid Pensions.

Also, a bill (H. R. 27638) granting an increase of pension to Jacob Alles—to the Committee on Invalid Pensions.

Also, a bill (H. R. 27639) granting an increase of pension to Minor Hoover—to the Committee on Invalid Pensions.

Also, a bill (H. R. 27640) granting an increase of pension to John H. McMillen—to the Committee on Invalid Pensions.

Also, a bill (H. R. 27641) granting an increase of pension to John H. Summers—to the Committee on Invalid Pensions.

Also, a bill (H. R. 27642) granting an increase of pension to Elmer V. Cowles—to the Committee on Invalid Pensions.

Also, a bill (H. R. 27643) granting an increase of pension to Charles H. Mason—to the Committee on Invalid Pensions.

Also, a bill (H. R. 27644) granting an increase of pension to Jacob D. Morris—to the Committee on Invalid Pensions.

By Mr. KNOWLAND: A bill (H. R. 27645) granting an increase of pension to Henry Beeson—to the Committee on Pensions.

By Mr. LAMAR of Florida: A bill (H. R. 27646) granting an increase of pension to Lizzie Lynch—to the Committee on Invalid Pensions.

By Mr. LASSITER: A bill (H. R. 27647) for the relief of the trustees of White Oak Church, of Dinwiddie County, Va.—to the Committee on War Claims.

By Mr. McGUIRE: A bill (H. R. 27648) for the relief of Jacob C. Robberts—to the Committee on Claims.

By Mr. MARSHALL: A bill (H. R. 27649) granting an increase of pension to William H. Blanchard—to the Committee on Invalid Pensions.

By Mr. MURPHY: A bill (H. R. 27650) granting an increase of pension to William L. Riley—to the Committee on Invalid Pensions.

Also, a bill (H. R. 27651) granting an increase of pension to Lewis F. Pelton—to the Committee on Invalid Pensions.

Also, a bill (H. R. 27652) granting an increase of pension to John Kehoe—to the Committee on Invalid Pensions.

Also, a bill (H. R. 27653) granting an increase of pension to Robert Parkin—to the Committee on Invalid Pensions.

Also, a bill (H. R. 27654) granting an increase of pension to Edward Trumble—to the Committee on Invalid Pensions.

Also, a bill (H. R. 27655) granting an increase of pension to Clement J. Cherington—to the Committee on Invalid Pensions.

Also, a bill (H. R. 27656) granting an increase of pension to Charles E. Bromley—to the Committee on Invalid Pensions.

By Mr. OLMSTED: A bill (H. R. 27657) granting an increase of pension to Robert Enis—to the Committee on Invalid Pensions.

By Mr. TOU VELLE: A bill (H. R. 27658) granting an increase of pension to Thomas J. Black—to the Committee on Invalid Pensions.

Also, a bill (H. R. 27659) granting an increase of pension to Harvey D. Parmenter—to the Committee on Invalid Pensions.

Also, a bill (H. R. 27660) granting an increase of pension to Isaac N. Smith—to the Committee on Invalid Pensions.

Also, a bill (H. R. 27661) for the relief of Egbert S. Reed—to the Committee on War Claims.

Also, a bill (H. R. 27662) for the relief of Henry S. Call—to the Committee on War Claims.

By Mr. WANGER: A bill (H. R. 27663) granting an increase of pension to Allen Martin—to the Committee on Invalid Pensions.

By Mr. FOSTER of Vermont: A bill (H. R. 27664) granting an increase of pension to Nicholas Wheeler—to the Committee on Invalid Pensions.

By Mr. HAMILTON of Michigan: A bill (H. R. 27665) granting a pension to Emilia Granger—to the Committee on Invalid Pensions.

PETITIONS, ETC.

Under clause 1 of Rule XXII, the following petitions and papers were laid on the Clerk's desk and referred as follows:

By Mr. ACHESON: Paper to accompany bill for relief of Joseph Gilmore—to the Committee on Invalid Pensions.

By Mr. ANSBERRY: Petition of Springfield Grange, No. 49, of Williams County, Ohio, favoring a national highways commission—to the Committee on Agriculture.

Also, petition of Ohio Seventh Day Adventists, of Columbus, against the passage of S. 3940 (proper observance of Sunday as a day of rest in the District of Columbia)—to the Committee on the District of Columbia.

By Mr. ASHBROOK: Petition of L. A. Pearson, of Columbus, Ohio, favoring repeal of duty on raw and refined sugars—to the Committee on Ways and Means.

By Mr. BATES: Paper to accompany bill for relief of Edgar A. Sheldon—to the Committee on Invalid Pensions.

Also, petition of Luther Gates & Son, of Shadeland, Pa., against parcels-post and postal savings bank laws—to the Committee on the Post-Office and Post-Roads.

Also, paper to accompany bill for relief of Oscar E. Mitchell—to the Committee on Invalid Pensions.

By Mr. BURKE: Petition of George H. Alexander & Co., the National Lead and Oil Company, the S. Keigbley Metal Ceiling and Manufacturing Company, and the Brown & Zortman Machinery Company, favoring proposed amendment to the bankruptcy act as per the Sherley bill (H. R. 21929)—to the Committee on the Judiciary.

By Mr. CALDER: Petition of Long Island Bottlers' Union, for retention of tariff on ginger ale and other carbonated beverages—to the Committee on Ways and Means.

Also, petition of American Protective Tariff League, against a permanent nonpartisan tariff commission—to the Committee on Ways and Means.

Also, petition of Yellow Pine Manufacturers' Association, against any changes in the tariff on lumber—to the Committee on Ways and Means.

Also, petition of New York Board of Trade and Transportation, favoring increase of salaries of United States circuit court judges to $10,000 and of United States district court judges to $9,000 per annum—to the Committee on Appropriations.

By Mr. CRAVENS: Paper to accompany bill for relief of estate of Dorothy Davis—to the Committee on War Claims.

By Mr. DARRAGH: Petitions of Eastport Grange, of Antrim County, Mich., and W. N. Baldwin and 12 other citizens of Gratiot County, Mich., favoring a national highways commission—to the Committee on Agriculture.

Also, petitions of Mount Vernon Grange, of Isabella County, Mich., and Elmer Kitrick and 10 others, favoring a parcels-post law (S. 5122) and a postal savings bank law (S. 6484)—to the Committee on the Post-Office and Post-Roads.

Also, petition of A. T. Pickham and 65 other citizens of Montcalm County, Mich., against passage of Senate bill 3940—to the Committee on the District of Columbia.

By Mr. DAWSON: Petition of 172 mercantile firms in the Second Congressional District of Iowa, against parcels-post and postal savings bank laws—to the Committee on the Post-Office and Post-Roads.

Also, papers to accompany H. R. 27470, fixing grade of certain employees at United States arsenals and proving grounds—to the Committee on Military Affairs.

By Mr. DIXON: Petition of Myron King and others, of North Vernon, Ind., against S. 3940 (religious legislation in the District of Columbia)—to the Committee on the District of Columbia.

By Mr. DRISCOLL: Petition of Hullim Brothers, of Syracuse, N. Y., favoring repeal of duty on raw and refined sugars—to the Committee on Ways and Means.

Also, petition of J. D. Neor and others, favoring enactment of legislation to create a national highways commission—to the Committee on Agriculture.

By Mr. ELLIS of Oregon: Petition of N. P. Hansen, O. C. Thompson, and 68 other citizens of Oregon, asking that jute grain bags and the cloth from which they are made be admitted free of duty—to the Committee on Ways and Means.

Also, memorial of legislature of Oregon, against the Porter bill, changing size of apple boxes—to the Committee on Interstate and Foreign Commerce.

By Mr. FORNES: Petition of superintendent of public works, New York, favoring improvement of upper Hudson River (Senate amendment No. 13)—to the Committee on Rivers and Harbors.

Also, petition of the Grand Army of the Republic of the State of New York, against consolidating pension agencies—to the Committee on Appropriations.

By Mr. FULLER: Petition of road committee of Alaska Chamber of Commerce, for appropriation of $1,000,000 in aid of Alaska roads—to the Committee on Agriculture.

Also, petition of the Hibbard, Spencer, Bartlett Company, of Chicago, favoring proposed amendment to bankruptcy act, as per the Sherley bill (H. R. 21929)—to the Committee on the Judiciary.

By Mr. GILHAMS: Petition of Chancey Avery and others, favoring parcels post on rural free-delivery routes and postal savings banks—to the Committee on the Post-Office and Post-Roads.

By Mr. GOULDEN: Petition of Tremont Baptist Church, of New York, in favor of a children's bureau in the Department of the Interior—to the Committee on Expenditures in the Interior Department.

Also, petition of Illinois Manufacturers' Association, favoring establishment of a merchant marine—to the Committee on the Merchant Marine and Fisheries.

Also, petition of New York Produce Exchange, against federal inspection and grading of grain—to the Committee on Interstate and Foreign Commerce.

By Mr. GRAHAM: Petition of the Fort Pitt Supply Company, the Brown & Zortman Machinery Company, and the National Lead and Oil Company, favoring the Sherley bill (H. R. 21929), amending present bankruptcy act—to the Committee on the Judiciary.

Also, petition of the Illinois Manufacturers' Association, favoring ship-subsidy legislation, to the end of swift ships to Australia, Asia, and the Orient—to the Committee on the Merchant Marine and Fisheries.

Also, petition of Iron City Subordinate Association, No. 24, Lithographers' International Protective and Beneficial Association of the United States and Canada, of Pittsburg, Pa., against reduction of tariff on lithographic works—to the Committee on Ways and Means.

Also, petiton of James P. Sipe & Co., of Pittsburg, Pa., favoring legislation in the fair interest of railways, etc.—to the Committee on Interstate and Foreign Commerce.

By Mr. GRANGER: Petition of Rhode Island Chapter, American Institute of Architects, favoring S. 8927, for a Lincoln memorial—to the Committee on the Library.

By Mr. GRONNA: Petition of American Society of Equity, for retention of the present import duties on grains—to the Committee on Ways and Means.

By Mr. GUERNSEY: Petition of Ira Barnes and others, favoring a national highways commission—to the Committee on Agriculture.

By Mr. HAMILTON of Michigan: Petition of citizens of Allegan County, Mich., for a national highways commission and federal aid in construction of highways (H. R. 15837)—to the Committee on Agriculture.

By Mr. HASKINS: Petition of Calais Grange, No. 387, of East Calais, Vt., favoring parcels-post and postal savings banks laws—to the Committee on the Post-Office and Post-Roads.

By Mr. HAWLEY: Petition of legislature of Oregon, against the Porter bill, increasing size of apple boxes—to the Committee on Interstate and Foreign Commerce.

By Mr. HINSHAW: Petition of citizens of Morse Bluff, Prague, Lushton, Grafton, York, Beaver Crossing, Dwight, Seward, Swaburg, and Cedar Bluffs, all in the State of Nebraska, against a parcels-post and postal savings bank law—to the Committee on the Post-Office and Post-Roads.

By Mr. HOUSTON: Paper to accompany bill for relief of James F. Youngblood (H. R. 11551)—to the Committee on Invalid Pensions.

By Mr. HULL of Iowa: Protest of citizens of Knoxville, Iowa, against establishment of parcels post—to the Committee on the Post-Office and Post-Roads.

By Mr. JENKINS: Petition of Thad C. Round, of Chippewa Falls, Wis., urging enactment of a law providing for a national income tax—to the Committee on the Judiciary.

By Mr. KAHN: Petitions of S. A. Young and 117 other residents of San Pedro, Cal., and J. G. Brown and 88 other residents of Ballard, Wash., favoring a law to exclude all Asiatics save merchants, travelers, and students—to the Committee on Foreign Affairs.

By Mr. KENNEDY: Paper to accompany bill for relief of James Meneely—to the Committee on Invalid Pensions.

By Mr. LASSITER: Paper to accompany bill for relief of White Oak Church—to the Committee on War Claims.

By Mr. LEE: Paper to accompany bill for relief of James M. Slate (H. R. 27568)—to the Committee on Invalid Pensions.

By Mr. LINDBERGH: Petition of citizens of Belgrade, Minn., against a tariff on tea and coffee—to the Committee on Ways and Means.

By Mr. LOUD: Petition of citizens of East Tawas, favoring parcels-post and postal savings bank laws—to the Committee on the Post-Office and Post-Roads.

Also, petition of Fisher Grange, No. 790, of Harrisville, Mich., favoring a national highways commission—to the Committee on Agriculture.

By Mr. McHENRY: Petition of Colley Grange, No. 365, of Colley, Pa., for the creation of a national highways commission and an appropriation for aiding in the improvement and maintenance of public roads—to the Committee on Agriculture.

By Mr. MANN: Petition of American Society of Equity, protesting against removal of import duty on grain—to the Committee on Ways and Means.

Also, petition of Yellow Pine Manufacturers' Association, against any changes of the tariff on lumber—to the Committee on Ways and Means.

By Mr. MURPHY: Paper to accompany bill for relief of William S. Riley—to the Committee on Invalid Pensions.

Also, paper to accompany bill for relief of Lewis F. Pelton—to the Committee on Invalid Pensions.

Also, papers to accompany bills granting increase of pension to Clement J. Cherington, Charles E. Bromley, Edward Trumble, John Kehoe, and Robert Parkin—to the Committee on Invalid Pensions.

By Mr. OLMSTED: Petition of Dauphin County Bar Association, favoring an increase of salaries to judges of federal courts—to the Committee on Appropriations.

By Mr. PADGETT: Paper to accompany bill for relief of heirs of Thomas Vernon—to the Committee on War Claims.

By Mr. PAGE: Petition of citizens of Montgomery County, N. C., favoring the Davis bill (for federal aid of state schools)—to the Committee on Agriculture.

By Mr. PORTER: Petition of residents of Medina, N. Y., against passage of Senate bill 3940—to the Committee on the District of Columbia.

By Mr. PRAY: Petition of citizens of Yellowstone County, Mont., against passage of the Johnston Sunday-rest bill (S. 3940)—to the Committee on the District of Columbia.

By Mr. RHINOCK: Petition of citizens of Boone County, Ky., favoring a parcels-post and savings bank law—to the Committee on the Post-Office and Post-Roads.

By Mr. SABATH: Petition of Chicago Typographical Union, No. 16, disapproving of the decision of Justice Wright relative to the case of Messrs. Gompers, Mitchell, and Morrison—to the Committee on the Judiciary.

By Mr. THISTLEWOOD: Petition of Cairo Commercial Club, against further hostile legislation toward corporations—to the Committee on Interstate and Foreign Commerce.

SENATE.

THURSDAY, *February 4, 1909.*

Prayer by the Chaplain, Rev. Edward E. Hale.

The Secretary proceeded to read the Journal of yesterday's proceedings, when, on request of Mr. GALLINGER, and by unanimous consent, the further reading was dispensed with.

The VICE-PRESIDENT. The Journal stands approved.

CLAIMS AGAINST CHOCTAWS AND CHICKASAWS.

The VICE-PRESIDENT laid before the Senate a communication from the Secretary of the Interior, stating, by direction of the President, and in response to a resolution of the 21st ultimo, relative to the report of J. W. Howell, an assistant attorney in the office of the Assistant Attorney-General for the Department of the Interior, covering the investigations conducted by him of the claims of certain persons to share in the common property of the Choctaw and Chickasaw Indians, etc., that the Interior Department has no report from J. W. Howell concerning the matters mentioned in the resolution (S. Doc. No. 694), which was referred to the Committee on Indian Affairs and ordered to be printed.

FINDINGS OF THE COURT OF CLAIMS.

The VICE-PRESIDENT laid before the Senate a communication from the assistant clerk of the Court of Claims, transmitting a certified copy of the findings of fact filed by the court in the cause of the Masonic Lodge of Bexar, Ala., *v.* The United States (S. Doc. No. 695), which, with the accompanying paper, was referred to the Committee on Claims and ordered to be printed.

MESSAGE FROM THE HOUSE.

A message from the House of Representatives, by Mr. W. J. Browning, its Chief Clerk, announced that the House had passed the bill (S. 4535) to amend section 714 of the Revised Statutes of the United States, relating to the resignation of judges of the courts of the United States, with amendments, in which it requested the concurrence of the Senate.

The message also announced that the House had agreed to the amendments of the Senate to the following bills:

H. R. 2952. An act for the relief of Chaplain Henry Swift, Thirteenth Infantry, U. S. Army;

H. R. 10752. An act to complete the military record of Adolphus Erwin Wells;

H. R. 11460. An act to remove the charge of desertion from the military record of William H. Houck;

H. R. 16015. An act for the relief of Lafayette L. McKnight; and

H. R. 20171. An act to correct the military record of George H. Tracy.